Rethinking Small-scale Fisheries Compliance: from criminal justice to social justice

Maria Hauck

Thesis Presented for the Degree of
DOCTOR OF PHILOSOPHY
in the Department of Environmental and Geographical Science
UNIVERSITY OF CAPE TOWN
2009

ABSTRACT

MARIA HAUCK

RETHINKING SMALL-SCALE FISHERIES COMPLIANCE: FROM CRIMINAL JUSTICE TO SOCIAL JUSTICE

Fisheries compliance theory has evolved over the past two decades in an attempt to understand the factors that influence fishers' behaviour and to develop appropriate strategies to enhance compliance. However, much of this research, which draws on both rationalist and normative perspectives, has largely focussed on the industrial fisheries. Empirical research on the small-scale fisheries sector, therefore, has been lacking. The overall aim of this thesis has been to develop a conceptual framework for understanding and addressing small-scale fisheries compliance by drawing on experiences in South Africa. This has been achieved through a detailed investigation of two small-scale fisheries case studies, as well as a review of the small-scale fisheries sector generally.

The findings from this research have emphasised the need to rethink our understanding of fisheries compliance in the small-scale sector. By drawing on empirical evidence, as well as the literature review, a conceptual framework has been developed that enhances existing compliance theory. This study highlights that an understanding of compliance behaviour *first* requires a critical analysis of how law has evolved, its history and the power dynamics that have shaped it. The conceptual framework further emphasises the need to understand compliance within a fishery system, acknowledging that social, economic, institutional and biophysical factors all impact on whether or not fishers' comply with rules and laws. By applying the conceptual framework to two case studies in South Africa, key drivers that influence fisher behaviour over time are identified and changes within the fishery system are analysed and documented. This thesis has also contributed to fisheries compliance theory by identifying the underlying principles that are seen as necessary to guide an alternative and more integrated approach to small-scale fisheries compliance. In addition to the principles of legitimacy and deterrence, which are incorporated into existing theories of compliance, this study emphasises that the principle of social justice is required to develop a more holistic approach to understanding and addressing small-scale fisheries compliance. By embracing these principles, it is argued that fisheries policies will shift away from a sole reliance on criminal justice to achieve compliance, to a more integrated approach that aims to sustain the fishery system as a whole.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

Acknowledgements of this nature often end with a personal tribute to those who one is closest to, and more often than not, those who sacrificed the most to make such an achievement possible. In my case, this is where I have chosen to begin. I need to start with my gratitude to Chanan, who has patiently walked every step of this journey with me. Thank you for your ability to share in my passion and for loving me for it. In addition to your solid support, thank you with the utmost respect and gratitude for being the most incredible father to Laina and Abby. During my long absences (both emotionally and physically), you have embraced this time with them. I hope that one day they will understand how their laughter in distant corners of the house motivated me to keep going, and to finish 'the book'. Thank you to all three of you, for respecting how important this work has been for me, and for continuing to plot new destinations for our world journeys.

Thank you to my supervisors. How lucky I have been. Merle Sowman and Jesper Raakjær have been a tremendous source of support and guidance from the very outset of this project. Their joint expertise complimented my research interests and I feel very privileged to have had such committed supervisors. Merle, there have been some tragedies and comedies over the years, and you have pretty much seen them all. Never a dull moment, I say! You have been a source of stability for me and I have valued our friendship immensely. Thank you for your ability to ground me when I have needed it most, for your belief in the importance of this work, and for your unconditional support every step of the way. And thank you for all the time and energy that you gave to this work in order for me to deliver what I have. Jesper, you took on this project out of the goodness of your heart! Despite your own commitments and obligations in Denmark, you sacrificed an immense amount of time to provide significant input into this study at critical points. You also believed in me, and this work, from the very beginning, which carried me through the more difficult times. There is no doubt that my work has significantly benefited from your insights and guidance.

I would also like to thank my family and friends for all the encouragement. To my family, who all live on the other side of the world, thank you for always supporting my decisions, no matter how crazy they seem. Despite the distance, I have felt your closeness. To my friends, who have been incredibly forgiving, and have, in different ways, provided immense physical and emotional support to both Chanan and I. No acknowledgement would be complete without gratitude expressed to Norah – who keeps our home running smoothly and is a constant source of fun, even when chaos surrounds her!

To my colleagues at the Environmental Evaluation Unit, thank you for the discussions, debates and full-on support! Thank you to Navo Omari, Mariam January, Samantha Williams, Vincent Zungu, Vuyo Madlokazi, Karin Neethling and Farai Kapfudzaiuwa for all your research assistance, support in the field and camaraderie at various stages of this project. A special thank you to Fahdelah Hartley, who has a tendency to remain calm during all sorts of crises, and who has been an incredible 'behind-the-scenes' support. Thank you to other academic colleagues in South Africa, such as Mafa Hara, Moenieba Isaacs, Serge Raemaekers and Jackie Sunde, who have all contributed in some way to my current understanding of small-scale fisheries, and whose interaction I have always valued. Lance van Sittert deserves special mention for his ability to constructively criticise one's argument at the same time as wholeheartedly providing support! Thank you for your valued contributions to my work. Thank you to Markus Bürgener, an old friend and colleague, where mutual respect for each other's work has led to some exciting collaborations – and hopefully many more.

I would also like to acknowledge the very important collaboration and assistance from colleagues at Marine and Coastal Management. Despite not seeing eye-to-eye on all issues, I have had a long history with many of you, and have appreciated the joint respect that we have had for each other's work. Also, I have only ever had an eager willingness from all of you to assist with providing data, attending interviews and for providing ad hoc information at the drop of a hat. In particular I would like to thank Angus Mackenzie, Genevieve Maharaj, Rob Tarr, Andy Cockroft, Danie van Zyl and Pedro Goosen. There are many others at MCM with whom I had less frequent interaction, but whose help I also gratefully acknowledge. Thank you also to other

colleagues in SanParks (in particular Robin Adams and Paul Sieben) and EKZN Wildlife (in particular Cedric Coetzee, Jean Harris, Gillian Rhodes and Ken Morty) for assistance and support at various stages of the research.

This research would not have been possible without the financial support from three avenues: the Norwegian-South African regional cooperation agreement (NORSA), the South Africa Netherlands Research Programme on Alternatives to Development (SANPAD) and the South African National Research Foundation (NRF). In addition to financial assistance, however, the first two funding opportunities were instrumental in establishing, what proved to be, highly valuable collaborative relationships with colleagues from Norway and the Netherlands. Thus, it is imperative that I extend my gratitude to Stig Gezelius from Norway, who has provided significant input into the conceptual aspects of this study, and who encouraged me from the very beginning to be 'bold' with my analysis. His trips to South Africa were very valuable to me and I have greatly benefited from our debates and discussions. Also, I would like to acknowledge the expertise of Maarten Bavinck and Han van Dijk, from the Netherlands, who successfully challenged my research question at our first meeting and encouraged me to think much broader in terms of shaping the scope of this study. I have enjoyed our interaction immensely and have greatly appreciated your insights into my work, and the fresh perspectives that you have provided. It is my hope that these collaborations will not die with the end of this project, but that we will find new and interesting research questions with which we can explore together.

Finally, I need to thank the fishers. To those who I have known since 1995, thank you for continuing to trust me and for continuing to share your stories. Thank you to those fishers who I have met and grown close to in more recent years. My interaction with each of you has been of great value, in many different ways. I hope that the end of this thesis will mark the beginning of many new opportunities to work together.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

APF	Abalone Processing Factory
ARHA	Abalone Rights Holders Association
CITES	Convention on the International Trade in Endangered Species of Fauna and Flora
DEAT	Department of Environmental Affairs and Tourism
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
GEAR	Growth, Employment and Redistribution Strategy
KZN	KwaZulu-Natal
MCM	Marine & Coastal Management
MLRA	Marine Living Resources Act 18 of 1998
MLRF	Marine Living Resources Fund
MPA	Marine Protected Area
NGO	Non-Governmental Organisation
RDP	Reconstruction and Development Programme
SANParks	South African National Parks
SAPS	South African Police Services
SFTG	Subsistence Fisheries Task Group
TAC	Total Allowable Catch
TMNP	Table Mountain National Park
TURF	Territorial User-Rights Fishery
WCRL	West Coast Rock Lobster

CHAPTER ONE

INTRODUCTION

1. INTRODUCTION

Fisheries management, worldwide, struggles to find a balance between protecting resources, ensuring equitable access to resources and promoting economic efficiency and stability (Hanna 2003). To try to achieve this balance, central governments have intervened by formulating policies and establishing rules and regulations, with the aim of ensuring compliance. However, it has been widely recognised that non-compliance in fisheries is widespread, and researchers and management authorities continue to grapple with the factors that lead to non-compliance (Gezelius 2003, Hatcher *et al.* 2000, Hemming and Pierce 1997, Hønneland 2000, Kuperan and Sutinen 1998, McKinlay and Millington 2000, Raakjær-Nielsen 2003). From a theoretical perspective, the past two decades have seen a shift taking place in understanding fisheries compliance and conceptualising appropriate responses to non-compliant behaviour.

Traditionally, fisheries compliance literature was built upon Becker's neoclassical model of rational criminality (Becker 1968), arguing that non-compliance was determined by the balance of expected gains and losses from illegal activities (Anderson and Lee 1986, Charles *et al.* 1999, Sutinen and Andersen 1985). This rationalist approach argues that external influences (such as rewards and punishment) prompt individual fishers to act in their own immediate self-interest. Based on this perspective of rational choice, fishers will choose to comply (or not) based on economic gains, the likelihood of detection and the severity of sanctions. Fisheries management systems worldwide have embraced this approach and governments often respond to non-compliance by increasing law enforcement efforts in order to increase the probability of detection and conviction (Hatcher *et al.* 2000, Raakjær-Nielsen 2003, Sutinen *et al.* 1990).

However, over the years, there has been an increasing realisation that compliance can be achieved even when formal law enforcement is weak. This led to an interest in the normative approach to compliance, which recognises that norms and morals, as well as the legitimacy of law and governance, are important factors that influence fisher decision-making (Gezelius 2002, 2003, 2004, Hatcher *et al.* 2000, Jentoft 2000, Kuperan and Sutinen 1994, 1998, Raakjær-Nielsen 2003, Sutinen and Kuperan 1999). This, therefore, led researchers to argue that a reliance on traditional law enforcement, as a primary means to enhance compliance, ignores the complexity of the socio-economic and political context of fishers and coastal communities. Thus, there was a call for '…a radically different approach to enforcement and compliance' (Berkes *et al.* 2001: 162). The realisation was that increased policing and punishment for non-compliant fishers often led to further conflict and violent confrontation between the fishers and the authorities (Gupta and Sharma 2004, Hauck 1999a, van Ginkel 2005). Thus, there was a need to understand compliance, and fisheries management more broadly, by tackling the social, economic, political and institutional challenges of the fishery in question. Although many governments continue to rely on law enforcement strategies to enhance compliance, research indicates the importance of combining the approaches and strategies of both rational and normative action theories to improve compliance outcomes (Gezelius 2003, Kuperan and Sutinen 1998, Raakjær-Nielsen 2003, Sutinen and Kuperan 1999).

However, it is argued in this thesis that fisheries compliance theory needs to be taken one step further to question the law itself - how it is formulated, and whose interests it serves. By doing so, one incorporates the important concept of social justice in understanding fisheries compliance, and in determining the rationale for certain activities being defined 'illegal'. By questioning the role of law in criminalising fishers, an important issue of terminology arose in this research, whereby the term 'illegal' fishers has largely been replaced by the term 'informal' fishers. Thus, 'informal fishers' is used throughout this thesis to refer to those fishers who are not formally recognised by law and are therefore perceived by the authorities as 'illegal'. As will be highlighted in Chapter Three, the socio-economic and political context of informal fishing has emphasised the need to question the criminalisation of small-scale fishers. Thus, the term 'illegal fishers', or fishery, has been avoided in relation to this sector, in order to question the assumption of illegality.

By questioning the formulation of law, social justice issues have emerged at the centre of this research. Social justice is underpinned by a human rights perspective, recognising the importance of equitable distribution and the minimisation of social, economic and political harm (Barton *et al.* 2007b, Scraton 2002). In a fisheries context, social justice refers to the importance of protecting customary practices, enhancing food security and sustaining livelihoods, all of which are fundamental to equitable fisheries laws and policies (Chuenpagdee *et al.* 2005, Hernes *et al.* 2005).

Linked to this is the understanding of fisher behaviour in its social, economic, political and institutional context. Research on fisheries compliance has only recently begun to explore the diversity and complexity of relevant variables in attempting to understand fishers' behaviour (Gezelius 2003, Hønneland 2000, Kuperan and Sutinen 1994, 1998, Raakjær-Nielsen and Mathiesen 2003, Roncin *et al.* 2004, Sutinen and Kuperan 1999). Although the need to take a broader approach to understanding compliance has been recognised, most of this research is still largely theoretical and there have been few empirical attempts to understand the determinants of fishers' compliance behaviour (Hatcher *et al.* 2000). Further, Gezelius (2002) argues that there are gaps in fisheries compliance research in terms of understanding the actual dynamics of non-compliance and in determining under what conditions certain factors influence fisher decision-making. Thus, the research outlined in this thesis attempts to understand the diverse factors that lead fishers to comply, or not comply, with formal rules and regulations. Small-scale fisheries in South Africa will be drawn on to explore these factors, their linkages, the key drivers that influence fisher behaviour over time, and the underlying principles that are necessary to understand and address small-scale fisheries compliance in a more integrated manner. Ultimately, the aim of this research is to develop a new conceptual framework for understanding small-scale fisheries compliance that is embedded in an understanding of the fishery system as a whole.

This introductory chapter will begin with a discussion on small-scale fisheries and the importance of reflecting on this sector for an understanding of fisheries compliance generally, and in relation to South Africa. A brief overview will then be provided on

the discourse of fisheries compliance in relation to Illegal, Unregulated and Unreported (IUU) fishing and how this impacts on compliance strategies targeted at small-scale fisheries. South Africa's approach to fisheries compliance will be briefly discussed, highlighting the need to understand and address non-compliance differently. The overall aim and objectives of this study will be outlined and finally, an overview of the remaining chapters in the thesis will be provided.

2. A FOCUS ON SMALL-SCALE FISHERIES

The research outlined in this thesis will focus on small-scale fisheries, as this is a sector that has received little attention in terms of fisheries compliance discourse. Compliance theory has emerged from a focus on industrial fisheries, with very little reference, and very few empirical studies, aimed at understanding compliance in the small-scale fisheries sector[1]. This has often led to the development of compliance strategies for the commercial fisheries of the North, which are transferred, and assumed to be relevant to the small-scale fisheries context of the South.

Small-scale fisheries have not been universally defined but generally encapsulate the terms 'subsistence', 'traditional' and 'artisanal' (Schumann *et al.* 2007, Sowman 2006). Although each context will be different, small-scale fisheries can be broadly characterised as employing labour intensive harvesting methods to exploit fish resources by operating from shore or from small fishing vessels. As Bavinck (2005) explains, small-scale fisheries can encompass a wide range of attributes and can be differentiated from the better known 'industrialised' or 'modern' fisheries. Generally speaking, small-scale fishers use less capital intensive gear and their catch per unit of effort is much smaller than those in the industrialised fisheries.

It is estimated that 90% of the world's fishers are small-scale fishers, with most residing in developing countries (FAO 2005a). Approximately one billion people rely on fish as a major source of animal protein (Ziegler 2004), and according to Berkes *et al.* (2001), 'the importance of the world's fisheries, and especially the small-scale

[1] For empirical research on small-scale fisheries compliance in Norway and Newfoundland (Canada) see Gezelius 2002, 2003, 2004; and in Malaysia, Indonesia and the Philippines see Kuperan et al. 1997, Kuperan and Sutinen 1994, 1998 and Sutinen and Kuperan 1999.

fisheries, in providing food, income and livelihood cannot be overemphasised, especially in developing countries' (p. 223). However, despite its importance in providing food security and livelihoods in coastal communities, small-scale fisheries are largely ignored and marginalised throughout the world (Berkes *et al.* 2001). This is particularly evident in fisheries management policies, which often favour the capitalist interests of large-scale industrial fisheries over small-scale traditional ones (Crosoer *et al.* 2006, Ghee and Valencia 1990). This was emphasised by the FAO Committee on Fisheries Research (2003), which stated that economic policies at a national level have favoured 'the development of large-scale approaches over small-scale ones and the resources being concentrated in fewer and fewer hands' (p. 9).

This conflict, and the increased reliance of coastal communities on fisheries resources, has come at a time when fish stocks, and the ecosystems upon which they depend, are being rapidly degraded. It is estimated that 77% of fish stocks are fully exploited, overfished or depleted worldwide (FAO 2005b). Thus, a crisis exists not only in terms of the future of fisheries, but also in terms of sustaining the livelihoods of coastal communities around the world.

In South Africa the situation is no different. Inshore resources are increasingly over-exploited (Cockroft *et al.* 2002), while these resources are critically important for the food security and livelihoods of coastal communities (Branch *et al.* 2002b, Cardoso *et al.* 2005, Sowman *et al.* 2008). Thus, with a resource-orientated approach to fisheries management, the state has responded with more regulation and increased enforcement. By relying on a discourse of 'illegal fishing', crime control methods are expected to 'solve' the problem of non-compliance. Internationally, however, it has been recognised that compliance issues relating to small-scale fisheries are not adequately understood, and therefore, not adequately addressed (Berkes *et al.* 2001). This study aims to contribute to this understanding of small-scale fisheries compliance, and to ascertain its relevance to fisheries compliance more broadly.

3. NORTHERN PERSPECTIVES IN A SOUTHERN CONTEXT

From an international fisheries management perspective, concerns about fisheries non-compliance grew in importance through the efforts of the United Nations (UN), which identified IUU fishing as a major contributor to fisheries collapse worldwide (FAO 2001, UN 2006). In fact, the Environmental Justice Foundation (EJF) in the United Kingdom (UK) states that IUU fishing represents 'one of the most serious threats to the future of world fisheries' (EJF 2005: 4). IUU fishing is defined largely on the basis of fishing activity that contravenes national, regional and/or international laws and regulations (FAO 2001). It evolved primarily from the international community's concern over illegal fishing in the high seas, and still largely focuses on industrial and international fleets (EJF 2005, MRAG 2005, Rigg *et al.* 2003). Certainly in terms of the impact of IUU fishing, there is reason to be concerned. In addition to the resource and ecosystem impacts, economic loss to developing countries due to illegal fishing is considered to be in the region of US$2-15 billion per year (EJF 2005). Developing countries with a high dependence on coastal resources for poverty reduction and livelihoods are severely impacted by foreign vessels fishing illegally in their waters (CEC 2007, EJF 2005).

The drivers of IUU fishing are largely attributed to economic incentives and inadequate laws and enforcement strategies to conserve marine resources (CEC 2007, EJF 2005). Thus, a focus on Monitoring, Control and Surveillance (MCS), particularly in terms of enhancing enforcement, have been a key focus of international organisations with an interest in eliminating IUU fishing (CEC 2007, EJF 2005, FAO 2003). Although MCS is considered a critical component of fisheries management (Flewelling *et al.* 2003), the problem is that the discourse of IUU fishing is being transferred to the South, where the context of 'illegal fishing' in the coastal zone is very different. Thus, although the focus of IUU fishing is on the large-scale industrial sector, concepts, approaches and interventions aimed at this problem are being incorporated into an understanding of fisheries non-compliance in the South, which include small-scale fisheries. The *modus operandi*, scale, socio-economic context and drivers of fishing activities are significantly different and yet inshore fisheries are

considered part of the IUU problem (MRAG and CapFish 2008). In an assessment of IUU fishing in Southern Africa, for example, 'abalone poaching' in South Africa was highlighted as *the* key compliance issue for South Africa's territorial waters (MRAG 2005). By motivating for increased law enforcement, the problem arises when the socio-economic, political, cultural and institutional factors influencing the illicit trade are ignored at the expense of following wider IUU rhetoric – originally aimed at high seas, international illegal fishing.

Thus, the result is that even in more recent documentation, where poverty and marginalisation are recognised as possible drivers to IUU fishing (SIF 2008), the overall message is that MCS capacity needs to be strengthened. For example, in a Stop Illegal Fishing report, while 'individual starvation' is identified as a possible cause of IUU fishing, the following paragraph states: 'The mindset that motivates crime is not too different to that which motivates IUU activities. Seeking personal advantage to the disadvantage of others is a fundamental motive for many IUU fishery operators' (SIF 2008: 3). Thus, the focus on increasing the costs of IUU fishing through enforcement and sanctions, which may be appropriate in some cases, ignores the complexity of the drivers of IUU fishing, which are not adequately acknowledged or understood in the small-scale sector. This is of great concern due to the fact that the empirical research outlined in this thesis highlights the diverse factors that are influencing compliance behaviour.

The trend is for developed countries to assist developing countries with IUU fishing challenges (CEC 2007, SIF 2008), but the different scales of IUU fishing are not sufficiently differentiated in order to develop appropriate strategies. Although there have been attempts to highlight the different IUU activities between industrial and artisanal fisheries in the Southern African Development Community (SADC), and to recognise that the drivers of illegal fishing may be different, further analysis is not forthcoming, nor are diverse strategies to address the different issues highlighted (MRAG and CapFish 2008). As a result, there remains a discourse significantly driven by the nation-states of the North, which may be relevant in that context, but are inadequate, and even inappropriate, in many developing country contexts. The result is that government authorities participating in these regional and international developments, which are heavily funded, are being encouraged to enhance MCS

capacity as an effective means with which to address IUU fishing – broadly. In terms of fisheries management more generally, McClanahan and Castilla (2007) state that 'fishery management measures for fixing developed and rich consumer societies will not necessarily match those required for developing societies' (p. 313). A reliance on MCS to address non-compliance is a case in point. Small-scale coastal fisheries, therefore, need to be understood in the context of customary fishing practices, fragile livelihoods, market dynamics, institutional arrangements and legitimate laws, all of which will be highlighted from the findings of this research.

4. FISHERIES COMPLIANCE IN SOUTH AFRICA

South Africa's coastline is more than 3000 kilometres in length, and it is estimated that approximately 10,000 species of marine plants and animals reside in these waters, with some being commercially exploited. Although South Africa's fisheries sector only contributes 0.3% of the overall GDP (Statistics South Africa 2004), and the first-hand sale value amounts to R3.1 billion (US$413 million)[2] a significant number of coastal communities rely on marine resources for their livelihoods (Branch *et al.* 2002b, Chandler 2003). Direct employment in fisheries is estimated to be about 29,000 in the industrial sector, with a further 29,000 estimated to be small-scale fishers (Chandler 2003, Clark *et al.* 2002).

Both a historical and contemporary understanding of fisheries management in South Africa is necessary in order to understand the current challenges to achieving compliance. Apartheid laws and policies, for example, which excluded the majority of small-scale fishers on the grounds of race, need to be understood. Similarly, capitalist interests in developing export-orientated fisheries need to be considered in understanding the marginalisation of the small-scale sector. Following the democratic elections in 1994, South Africa embarked on a new fisheries policy process that aimed to address the inequities of the past (Witbooi 2006). This policy process, as well as the legislation that resulted, had important implications for fisheries compliance.

[2] Exchange rate of US$1:R7.50 as of August 2008

First, the policy process provided an opportunity for those small-scale fishers who had been denied legal access to resources in the past to lobby for formal recognition. This often took place as a form of 'protest fishing', in which fishers harvested resources 'illegally' and openly as a means to pressure government for access. This raised the profile of 'illegal fishing' and pressure was placed on the state, by elements of civil society, industry and scientists, to address this form of non-compliance (Hauck and Kroese 2006). Second, the promulgation of the Marine Living Resources Act (MLRA, No. 18 of 1998) led to a process of 'fisheries transformation' in which formal rights to marine resources were significantly broadened to include historically marginalised fishers. This led to the extensive redistribution of access rights in the industrial fisheries (Branch and Clark 2006, Raakjær-Nielsen and Hara 2006), the identification of a limited commercial sector that comprised small-scale fishers (Isaacs 2006a) and the legal recognition of subsistence fishers for the first time in history (Sowman 2006). Thus, the fisheries authority was faced with many more fishers who had legal access to resources, resulting in the need for effective institutional arrangements to manage this sector. Finally, the political pressure to redistribute access rights, with limited and often over-exploited resources, led to the realisation within government that compliance with fisheries laws was critical. The rationale was that resource over-exploitation (or non-compliance) reduces the scope for government to bring new entrants into the fisheries and jeopardises its attempts to redistribute economically viable access rights (Hauck and Kroese 2006). Each of these factors has motivated the fisheries authority, Marine and Coastal Management (MCM) of the Department of Environmental Affairs and Tourism (DEAT), to significantly increase its investment in enhancing fisheries compliance.

Thus, in South Africa, there has been a clear move by the fisheries authority to strengthen law enforcement capacity as the primary objective and means to achieve compliance (Hauck and Kroese 2006). From 1999, a new institutional structure prioritised MCS to the level of a Chief Directorate within MCM, also leading to a 400% budget increase over the past decade. This has contributed to a highly skilled investigative team, the appointment of state prosecutors to focus on marine crime, a strengthening of inter-agency law enforcement cooperation and the procurement of four new patrol vessels. The focus has been on strengthening the 'policing' function of the fisheries directorate.

Although this enhanced law enforcement capacity has been considered important for South African fisheries, there has also been concern of an *over-reliance* on crime control strategies to achieve compliance (Hauck and Kroese 2006). The ineffectiveness of this crime control model has been reflected by an increased scientific concern for the status of inshore marine resources (Branch and Clark 2006, Cockroft *et al.* 2002), and the perception of small-scale fishers that they are criminalised through this approach by the state (Branch *et al.* 2007, Cardoso *et al.* 2005, Hauck *et al.* 2002). Political protests, court cases, violent conflict and high levels of non-compliance further testify to this (Hauck 1999a, 2007, Hauck *et al.* 2002, Isaacs 2006a, Witbooi 2006).

The overall aim of this research, therefore, is to develop a conceptual framework for understanding and addressing small-scale fisheries compliance in South Africa. Through a detailed investigation of two small-scale fisheries case studies in South Africa and a review of the small-scale fisheries sector generally, the following specific objectives were addressed: 1) to understand the nature of the small-scale fishery systems investigated, 2) to identify the factors that influence compliance behaviour in the context of these fisheries, 3) to analyse these factors, and how they interact, in order to determine the drivers that change the fishery system over time, 4) to identify the principles that are required to inform a more integrated approach to small-scale fisheries compliance, and (5) to contribute to fisheries compliance theory by fundamentally enhancing the debate to include issues of power and law. Finally, although this thesis has drawn on South African experience, the objective is to develop a conceptual framework for understanding small-scale fisheries compliance that has broader applicability.

5. OUTLINE OF THE THESIS

This first chapter has provided an overview of small-scale fisheries, highlighting the importance of understanding compliance differently in this sector, as opposed to industrial fisheries. A discussion of the approach taken to address IUU fishing, for example, emphasised that it is inappropriate to adopt this approach, and its resulting

strategies, in the small-scale sector without a thorough understanding of the factors that influence fisher behaviour. An overview of South Africa's approach to fisheries compliance was provided, as well as the overall aim and objectives of this thesis.

Chapter two outlines the research approach and methods adopted in this study. It begins with a discussion of systems thinking, grounded theory, action research and qualitative approaches, which were all used to guide the research and inform the choice of methods and techniques used to gather and analyse information. It then outlines the research process, as well as the methods employed in this study. One of the key methods was the use of case studies, which were chosen as 'telling' cases, in order to provide important insights into factors driving non-compliant behaviour. The two small-scale fisheries, West Coast Rock Lobster (WCRL) and abalone, were chosen for a number of reasons including the high levels of non-compliance in these fisheries, the social, cultural and economic significance of these fisheries in coastal communities, their inclusion in 'fisheries transformation' through the redistribution of access rights and the focussed law enforcement interventions that have targeted these fishers. These case studies were then analysed in conjunction with a broader overview of small-scale fisheries in South Africa. Other methods, data analysis tools and ethical considerations are also discussed in this chapter.

Chapter Three provides an important theoretical context to this study, briefly outlining traditional compliance theory and then challenging some key assumptions. It draws on criminology discourse as a means to question fisheries law, and in particular, the rationale behind the criminalisation of some fisher behaviour. Further, by drawing on green criminology, and fisheries systems thinking, an emphasis is placed on understanding the root causes of non-compliance and ensuring that compliance strategies address the political, social, economic and institutional factors that are influencing fishers' behaviour. Further, this chapter introduces the preliminary conceptual framework that was developed in the beginning stages of the research process and which guided further empirical research and theoretical development.

Chapter Four provides a review and broad analysis of small-scale fisheries in South Africa, including the challenges related to compliance. It describes the natural and socio-economic systems underlying this sector, drawing on the literature as well as

primary research in different areas in the country. It provides an overview of the legal and policy reform process that has taken place in South Africa since 1994 and outlines key features of relevant policies and legislation relevant to small-scale fisheries compliance. Further, different management strategies adopted by MCM to regulate small-scale fisheries are outlined, including the redistribution of marine resources through 'transformation' processes, MCM's resource-oriented and scientific approach to management, and MCM's approach to law enforcement. A discussion on some of the underlying factors influencing compliance behaviour is undertaken.

Chapter Five provides an in-depth overview and analysis of the abalone fishery as a key case study for this research. As with Chapters Four and Six, the information is presented in a manner that assists the reader to understand the fishery as a 'system', and thus the natural, socio-economic and management systems are each described. In terms of compliance, the abalone fishery has had a high profile since the mid-1990s, and has been identified as the most pressing fisheries compliance challenge in South Africa. The Total Allowable Catch has decreased substantially over the past decade, with the Minister of DEAT closing the commercial fishery indefinitely from February 2008. Despite a number of focussed interventions, many of them based on a crime control model, fishers' livelihoods have been threatened, the resource is unstable and a thriving international illicit trade exists. An understanding of this fishery, therefore, has been key to an understanding of small-scale fisheries compliance in South Africa.

Chapter Six provides a detailed description and analysis of the WCRL fishery, with a particular focus on one community. The informal fishery is explored in detail, highlighting the activities of those fishers who harvest the resource but who do not have a formal, or legal, 'right' to do so. This case study provides important insights with regard to the customary value of the fishery, the growing black market trade and the inconsistent policies that have often prioritised big industry over the small-scale fishers. Further, this case study benefits from the rich historical research that has been drawn on for both the description and the analysis of the fishery.

Chapter Seven provides an analysis of the case study material and reflects on the initial conceptual framework presented in Chapter Three. A revised conceptual framework for understanding small-scale fisheries compliance is then provided, which

emphasises that an understanding of compliance requires an understanding of law, as well as the powerful interests behind its development. Further, the compliance framework highlights the importance of understanding compliance within the context of the fishery system as a whole. Key to this chapter is an emphasis on the linkages between the factors that influence fisher behaviour and the key drivers that lead to a change in the fishery system over time. The chapter ends with a discussion of the underlying principles, which emerged from this research, that are considered necessary for developing a more integrated approach to small-scale fisheries compliance in South Africa, and more broadly.

Chapter Eight provides an overall conclusion to the thesis. In particular, it highlights the key contributions of this research in terms of broadening current compliance thinking and highlights the importance of adopting the principle of social justice into fisheries law and policy.

CHAPTER TWO

RESEARCH APPROACH AND METHODS

1. INTRODUCTION

Limited empirical research has been conducted on fisheries compliance and most of this research has focussed on industrial fisheries (Gezelius 2003). Small-scale fisheries have received little attention in compliance discourse, despite increased regulations by central governments and increased resistance by fishers to laws and regulations. The response by governments is often to increase law enforcement as a means of mitigating non-compliance, without adequately considering the history, or circumstances of small-scale fishers (Berkes *et al.* 2001). There is wide recognition, for example, that small-scale fishers are often the poorest members of society (Berkes *et al.* 2001, Béné 2003), requiring a need to understand the social and economic factors motivating people to fish. Further, the political, institutional and biophysical dynamics that influence fisheries management decision-making also need to be considered when understanding fishers' behaviour.

In acknowledging the diverse range of factors that influence fishers' decisions to comply or not, one is also recognising the need to look beyond law enforcement to achieve compliance in fisheries. Internationally, although this shift in thinking has taken place at a theoretical level (Gezelius 2003, Hatcher *et al.* 2000, Hønneland 2000, Kuperan and Sutinen 1998, Raakjær-Nielsen and Mathiesen 2003), there has been little empirical evidence of such a shift taking place in practice (Raakjær-Nielsen 2003). There remains an overwhelming reliance on law enforcement as the primary strategy to achieve fisheries compliance. South Africa is no exception, and the research outlined in this thesis begins to challenge traditional thinking on compliance and the approach that is being embraced by the authorities.

If one refers to a number of small scale fisheries case studies in South Africa (Harris *et al.* 2007, Hauck and Sowman 2003, Isaacs 2003), it is clear that an overall

understanding of the nature of compliance, as well as the strategies to achieve compliance in different contexts, is different between researchers, managers and fishers. The past ten years, and more specifically the past five years, have seen a significant change in compliance effort, with a particular focus on increasing law enforcement capacity and effectiveness (Hauck and Kroese 2006). Although law enforcement has been significantly strengthened, informal fishing remains an ongoing challenge for the fisheries authority. This highlights the need to understand the factors that are driving fishers to behave in the way that they do, and to develop appropriate fisheries management arrangements that reflect these.

Thus, a key approach to undertaking this research has been to understand small-scale fisheries in South Africa as a 'system', which encapsulates the ecological, social, economic, political and institutional aspects of the fishery, and how they interrelate (Charles 2001). This will be discussed below, as well as the three other approaches that have influenced the conceptualisation and implementation of the research. The research methods that were adopted to conduct the research will then be discussed, including some important ethical issues. Finally, the chapter will end with a brief conclusion, reflecting on the utility of this research and the challenge of balancing academia with the realities of policy development and local level change.

2. RESEARCH APPROACH

The use of different tools and techniques to gather information, as well as the conceptualisation of theory, are informed by the researcher's approach to the research itself (Bryman 2004, Seale 2004a). This study draws on the concepts and principles underpinning systems thinking, grounded theory and action research, and uses qualitative research approaches to gather and analyse empirical data and to understand small-scale fisheries compliance in South Africa. These different research approaches were complimentary in many ways and are discussed below.

2.1 A Systems Approach

In the area of natural resource management, there is an increasing realisation that traditional, natural science based methods of addressing problems are no longer appropriate, and there is a need to look for broader approaches and solutions (Berkes *et al.* 2003). This is certainly the case in fisheries management, where there is broad consensus that many of the world's fisheries are in crisis, and there is a need to move beyond a primary focus on the bio-physical aspects of a fishery (Berkes *et al.* 2001, Castilla and Defeo 2005, Charles 2001, Pauly *et al.* 2003). As Defeo *et al.* (2007) clearly state:

> 'The status of the world's fisheries is worrying and the factors that have led to the global decline are biological, social, political and cultural in nature. Marine fisheries are in trouble…the trouble has occurred in the context of a well-developed fisheries science that has largely focused on the resource and the biophysical aspects that control them but with less focus on the societal aspects of resource management' (p. 15).

This change in thinking has been influenced by systems thinking, which seeks to understand fisheries as complex and integrated natural, social, and management systems (Charles 2001, Defeo *et al.* 2007). Systems thinking emerged as a critique of reductionism, which understands phenomenon by breaking them down into parts for ease of analysis (Flood 2001). Systems thinking, however, builds together the components of a phenomenon and assesses their interrelatedness, understanding it as a whole, rather than breaking it into parts (Flood 2001). Charles (2001) explains that in a fisheries context, fisheries need to be understood 'as webs of interrelated, interacting ecological, biophysical, economic, social and cultural components, not as fish separate from the fishers…' (p. 3).

Historically, people and their social systems were at the periphery of fisheries management, and often ignored. However, particularly from a small-scale fisheries perspective, there is an increasing acknowledgement of revised approaches to management that aim to achieve sustainability in the broader context (Berkes *et al.* 2001, Kooiman *et al.* 2005, McClanahan and Castilla 2007, Symes 2006). Berkes *et*

al. (2003) explain that sustainability 'implies maintaining the capacity of ecological systems to support social and economic systems' (p. 2). The aim, therefore, is to secure marine resources at the same time as securing the livelihoods of fishers. This is further discussed by Charles (2001), who affirms that the concept of sustainability needs to be understood comprehensively, not just in terms of the fish stocks themselves. Rather, sustainability is about maintaining or enhancing ecological, socio-economic, community and institutional aspects of a fishery system.

Systems thinking has guided the conceptualisation of this research, and recognises that an understanding of fisheries compliance could not focus on one particular aspect of the fisheries system. In the past, for example, fisheries compliance was often understood and analysed from an economic perspective, exploring the costs and benefits of fishers' actions (Anderson and Lee 1986, Sutinen and Andersen 1985). Other studies began to explore compliance more widely, investigating social and institutional issues related to morality and legitimacy (Gezelius 2002, 2003, 2004, Hatcher *et al.* 2000, Hønneland 2000, Kuperan and Sutinen 1998, Raakjær-Nielsen and Mathiesen 2003). This research, however, took the investigation one step further by seeking to understand and assess the different aspects of the fishery *system* (social, economic, political, institutional, historical, biophysical) as a means of understanding compliance behaviour of fishers.

A significant point to highlight in this regard is that most fisheries compliance studies focus on the behaviour of *formal* fishers, or those who have legal access to marine resources. This study, on the other hand, also highlights the role and behaviour of 'informal' fishers, or those who do not have legal access, and are therefore considered 'illegal' by the authorities. This distinction is very important as the research findings have indicated that both formal and informal fishers harvest resources, operate under certain rules and are affected by, and impact upon, other aspects of the fishery system. Therefore, to understand compliance in a fishery system, there needs to be an understanding of the informal system that is operating.

A focus on small-scale fisheries further enhanced this understanding of fisheries as a system. As McClanahan *et al.* (2008) state, 'an integrated approach that addresses multiple needs, that at first appear peripheral to conservation and fisheries

management, is essential in poor countries where there are multiple pressing priorities for action and a lack of infrastructure to deal with the costs of monitoring, control and surveillance of management measures' (p. 10). This is again emphasised by Berkes *et al.* (2001), who argue that many small-scale fisheries are exposed to a myriad of socio-economic and political issues that may influence their behaviour to comply.

2.2 Grounded Theory

The research approach guiding this study also adopts many of the principles of 'grounded theory' (Glaser and Strauss 1967), which seeks to generate theory from the data itself rather than begin the research with a predetermined theoretical framework. As a result, the researcher embarks on an iterative research process, whereby visits to the field to collect data are interspersed with periods of data analysis. In this way, there is 'continual re-examination of data in the light of developing arguments' (Seale 2004c: 244). In this research, theoretical development emerged from information gathered in the field, which in turn generated new empirical questions. For example, the process of exploring compliance from a systems perspective only emerged as the research unfolded and initial ideas were explored in the development of the preliminary compliance framework (which will be introduced below and described in more detail in Chapter Three).

However, a key criticism of grounded theory is that it is naïve to assume that researchers embark on a research question with no preconceived ideas. As Spicer (2004) argues, even where theories emerge from data, it is likely that the research is based on previous assumptions or 'hunches'. This is certainly acknowledged in this research, where previous information gathered on fisheries compliance in South Africa inevitably shaped the approach in this study. Nevertheless, there was a conscious effort to build a conceptual framework over time, through engagement with the data collected, as a means of questioning and shaping theoretical development.

The key research question itself evolved in important ways during the first phase of fieldwork. Critical assumptions, based on previous research, were being challenged. Through the fieldwork, and engagement with local and international colleagues, the

fundamental question guiding the research began to evolve. At the outset, the research question was: how can higher levels of compliance be achieved in small-scale fisheries in South Africa? It was proposed that this question would be investigated through a research process that identified the factors that led to non-compliance, the key drivers that influenced behaviour over time, and the principles to inform an alternative approach to compliance in different circumstances. Although the secondary questions were still relevant, the initial research question inadvertently contained an important assumption that rules and laws were legitimate, and that the goal was in fact to enhance compliance of these. This proved to be a critical realisation and will be discussed further in Chapter Three. In acknowledging that South Africa's political history had led to a number of inequitable laws and policies, it was important to reframe the research question to: *what are the factors that lead fishers to comply, or not comply, with formal rules and regulations*? By reframing the question, the researcher was better able to investigate all factors influencing fishers' behaviour (including the influence of history and power in defining law) and to approach compliance more in terms of a fisheries system, rather than seeing 'increased compliance' as an end in itself.

2.3 Action Research

In many ways, the research question was pragmatic, which reflected the researcher's involvement in government policies and processes, and which is characterised by the approach of 'action research'. Action research is defined as research that promotes change, and seeks to improve practice and understanding (Robson 2002). The research engages with a real challenge that fishers, and fisheries authorities, are grappling to address, and it was co-funded through the national fisheries directorate (Marine and Coastal Management – MCM – within the national Department of Environmental Affairs and Tourism - DEAT). Thus, there were expectations that this research would not be an 'ivory tower' exercise, but would inform fisheries policy and management decision-making in South Africa (see Hauck 2009 for policy recommendations).

One aspect of action research is 'policy research', which aims to inform policymakers on a particular challenge or problem that they face to provide action-oriented recommendations (Majchrzak 1984). A key objective of this study was to understand fisheries non-compliance in all its complexity as a means of understanding the problem in such a way that the underlying principles to address compliance in a more integrated manner could be identified. It was not the intention of this research to develop specific interventions, but rather to develop a conceptual framework that would guide government in developing appropriate compliance strategies. This is emphasised by Majchrzak (1984), who argues that policy research is, among other things, an empirico-inductive approach (in line with grounded theory) that allows concepts and theory building to emerge from the data itself, through an iterative process that begins with an understanding of the social problem itself. Further, she states that policy research is multidimensional, requiring all the complexities of the problem to be identified. Caution is expressed, however, that action researchers, and policy researchers, need to acknowledge that 'change is a process, not an event' (Robson 2002: 219). Thus, research may not have immediate impact, but should be considered by the decision-makers and should contribute to a change in thinking. Reason and Bradbury (2001) emphasise that action research is about creating new forms of understanding, and through this understanding (and reflection), new solutions to problems can be explored.

Action research can be particularly challenging, however, when research results question current paradigms (Majchrzak 1984). A particular conflict emerged in this regard during the latter months of 2007, when the Minister of DEAT announced the closure of the commercial abalone fishery (DEAT 2007a). This decision, which was a direct response to non-compliance in the fishery, contradicted the research results of this study. The researcher openly opposed the decision but then conflict emerged with MCM, which was the organisation also co-funding the research. These conflicting paradigms were acknowledged in the research and it often called for careful sharing of information with government. Thus, although the research results may not have been supported by decision-makers, interaction with government authorities continued during this time of conflict and information was shared as a means of trying to shape a new understanding of the problem itself.

2.4 Qualitative Approach

To compliment the approaches outlined above, this research also adopted a qualitative approach to understanding small-scale fisheries compliance in South Africa. Qualitative research focuses on phenomenon that occur in *natural settings* and that involve studying and understanding the *complexity* of the phenomenon (Robson 2002, Silverman 2001, Seale 2004a). Thus, qualitative researchers focus on the multifaceted nature of what they are studying, including the many dimensions and layers (Leedy and Ormrod 2005). This contextual approach was adopted in this research as a means of understanding fisheries compliance in its entirety, at the very least identifying the complexities of the fishery system. In understanding a complex social problem, all elements may not be extensively studied, but all elements should be identified and considered in order to understand the multi-dimensional nature of the problem (Majchrzak 1984). Further, as Bryman (1988) explains, 'whatever the sphere in which data are being collected, we can understand events only when they are situated in the wider social and historical context' (p. 65).

Although this study did not embark on quantitative research methods, their value is acknowledged, and other quantitative research studies were drawn on at various stages of the research. The perceived dichotomy between quantitative and qualitative methods is disputed, and it is argued that both can be used in research, and they are not mutually exclusive (Bryman 1988, 2004). Quantitative surveys, for example, used in various small-scale fisheries research in South Africa were referred to, particularly in relation to socio-economic characteristics of fishers and their livelihood strategies. A compliance survey on four South African fisheries was drawn on for the abalone case study, and for broader conceptual understanding, but it needed to be contextualised within historical, socio-economic and political issues (Hauck *et al.* 2005). The focus of this research, therefore, was less on the determination of facts per se, but more on the understanding of fisher behaviour in a particular context. Thus, this study draws on the social constructionist perspective, which recognises that we need to understand the *meaning* that people give to their perceptions and their actions (Seale 2004a).

3 METHODS

This section highlights the different methods that were used to gather information and insight on fisheries compliance and small-scale fisher behaviour in South Africa. Six key methods used in this research will be discussed: (1) case studies, (2) literature review, (3) fieldwork, (4) participation in meetings, (5) interviews and (6) participant observation. All of these methods have been used to conduct and analyse information and to rethink existing theory on small-scale fisheries compliance.

Given that a wide array of methods was employed, the process of triangulation was adopted in this research as a means of understanding compliance by 'tackling it' through various angles. Triangulation is a widely used strategy as 'it involves the use of multiple sources to enhance the rigour of research' (Robson 2002: 174). Triangulation can refer to using more than one method in data collection, as well as using more than one theory or approach to plan the research and explain the research results. It is often used to check results for consistency, but should not be assumed to deliver a definitive 'truth' (Spicer 2004). Through triangulation, different tools are used to approach the same question, or different questions are used to investigate something in different ways (Robson 2002).

The methods chosen for this study have also been influenced by the research approaches discussed above. In order to facilitate an understanding of the research process, Figure 2.1 outlines this process and the methods that were used.

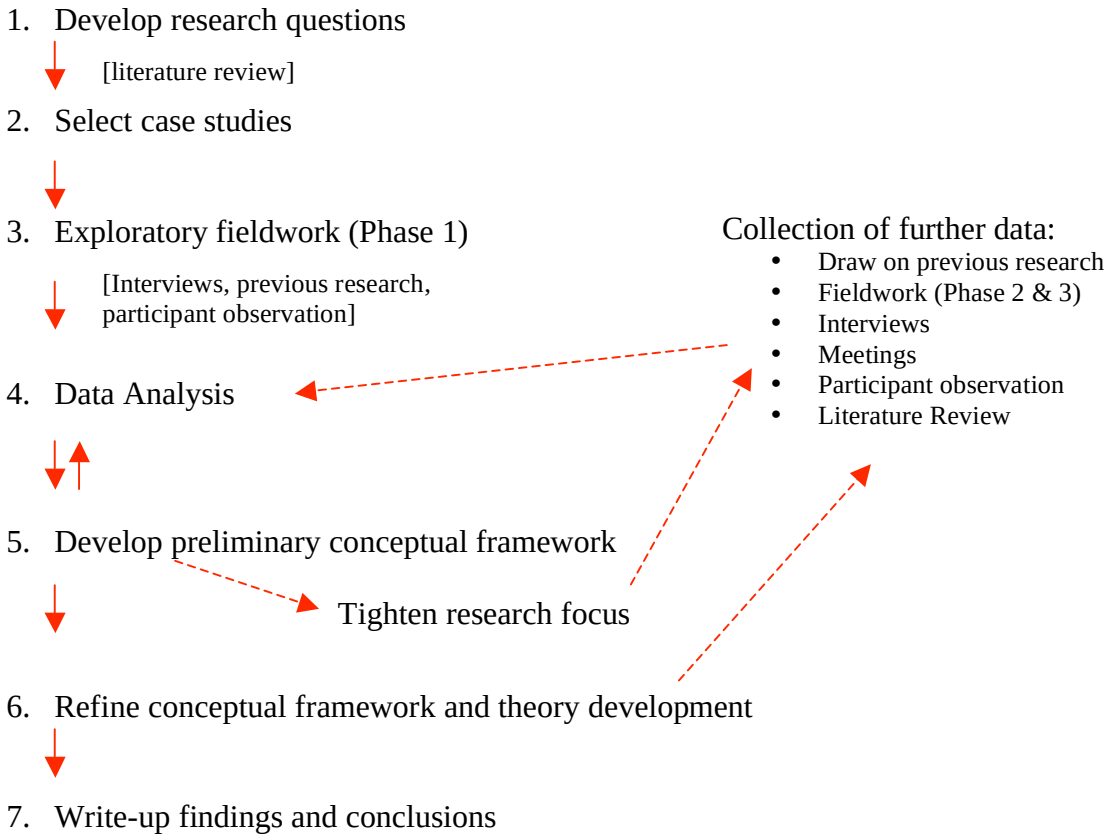


Figure 2.1: Outline of the research process adopted in this study (drawn on from a description of qualitative research in Bryman 2004). The dotted lines reflect the iterative process between data collection and conceptual and theoretical development.

3.1 Case Studies

Case studies have been identified as a key method to generate theory from empirical experience (Eisenhardt 1988). Hagan (1982) defines a case study method as an in-depth qualitative investigation of a particular phenomenon in an illustrative case. As Mitchell (1984: 239) explains, this does not have to be a 'typical' case, but a 'telling' case, where patterns and relationships between people and events are sufficiently illustrated. The focus of this study was on small-scale fisheries compliance in South Africa and two case studies were identified that could provide important information on understanding the factors that influence fishers to comply or not. Some researchers have questioned the case study approach because it is difficult to generalise findings to other populations (Bryman 2004). Robson (2002), however, argues that it is a misconception to assume that more than one case study is a 'sample'

of cases whereby broad generalisations can be made (Robson 2002). Rather, multiple case studies can contribute to analytic generalisation, which refers to the development of theory that can be understood in different cases (Yin 1994). For example, as Robson (2002) explains, one case will provide evidence that supports a particular theoretical view, which may then guide the choice of subsequent cases, and patterns in data are analysed to construct generalised theory. The results of the case study research were analysed in conjunction with findings gleaned from a review of small-scale fisheries research in South Africa (Chapter 4), which enabled the researcher to highlight general trends that were emerging in South Africa, beyond the case study sites.

The abalone and west coast rock lobster (WCRL) fisheries were chosen as the two case studies in this research. Although the focus of the research was different in each of the cases, they were identified as 'telling cases' for a number of important reasons. First, both of these fisheries are small-scale fisheries, with long-standing traditional use, and with social, economic and cultural significance to many coastal communities. Second, both of these fisheries have been considered key in the transformation of South African fisheries and the redistribution of rights to previously disadvantaged fishers (DEAT 2002). Third, abalone and WCRL are considered 'high value' resources (Cockroft *et al.* 2002), which are perceived to entice illegal harvesting and trade (Harris *et al.* 2002b). Fourth, it is well known that an organised informal fishery exists for abalone and WCRL (Hauck 1999a, Nel 2005), which has resulted in focussed law enforcement interventions, and a high priority focus in terms of compliance. Eisenhardt (1988) emphasises that the selection of case studies is often influenced by their *relevance* to theory development, particularly when one adopts a grounded theory approach.

The rationale for choosing the abalone and WCRL fisheries, despite the fact that they are both considered high value species by the authorities (Cockroft *et al.* 2002), needs to be highlighted. First, the researcher was involved in a study that explored fisheries compliance issues broadly in South Africa (Hauck *et al.* 2005). Although not an in-depth study, the research findings indicated that the most significant issues influencing behaviour were the same irrespective of the value of the resources. Second, the 'value' of resources can be disputed. It is argued that with resources of

high economic value, the incentives are greater for fishers to over-harvest (Harris *et al.* 2002b). However, other research has found that even those resources with low economic value are still 'highly valued' by the fishers due to high levels of dependence for food security or income (Hauck *et al.* 2005, Isaacs 2003, Kariem 2005, Sowman 2006). Finally, the two case studies chosen for this research are 'telling' cases, as outlined above, and in the spirit of action research, are critical compliance challenges that government is aiming to address. Further, other South African research, including primary research conducted by this researcher, is highlighted in Chapter 4 and was drawn on for conceptual and theoretical development. Thus, in developing a new conceptual understanding of small-scale fisheries compliance in South Africa, the two case studies were key, but the analysis was also informed by broader small-scale fisheries research.

Thus, the abalone and WCRL fishery case studies have been chosen as a means to provide rich insight, in a particular context, into the behaviour of small-scale fishers, to highlight the complex system that is operating within and between formal and informal fisheries, to contribute to theoretical development more broadly and, importantly, to contribute to an understanding of two pressing compliance issues in South Africa. The characteristics of each case study will be briefly discussed as well as more specific rationale for their importance to this research.

3.1.1 The abalone fishery

The abalone fishery is the most well known fishery in terms of non-compliance in South Africa. It has received significant media coverage since 'protest fishing' became highly visible in the mid-1990s, whereby informal fishers openly harvested abalone 'illegally' as a means of protesting government for legal access (Hauck 1999a). Since this time, state authorities and civil society have embarked on a number of initiatives to minimise conflict and limit over-exploitation. However, the informal fishery has grown in size and sophistication, resulting in an informal offtake of 12 times that of the formal fishery in the 2006/7 season (ASWG 2007). In February 2008 the commercial fishery was closed due to concern for the state of the resource (DEAT 2007a).

Of great value to this case study was previous research conducted on the abalone fishery in specific communities (Hauck 1997, Hauck 1999a,b, Hauck and Hector 2003). This in-depth investigation of the informal fishery at a micro-level, which began in 1995, was not repeated in this study. Rather, the focus of this research was on a regional perspective, interacting with different stakeholders more broadly. By drawing on over a decade of research, a key objective was to explore how the informal fishery had changed over time and the factors that led to its increased levels of organisation. Key to understanding the abalone fishery was investigating the factors that led it to evolve from a largely traditional fishery to one that is highly organised and involved in international illegal trade.

Thus, this case study focussed largely on the area where abalone harvesting was historically centred and where both the formal and informal fisheries were concentrated (Zones A-D, see Figure 2.2). It was in this area where most of the interviews took place, although some stakeholders were also contacted in the other zones (mainly Zone E). Traditionally, when the abalone resource was stable, over 90% of the commercial fishery was harvested in Zones A-D (Tarr 2000) and from 2003 approximately 80% of abalone rightsholders were located in this area.

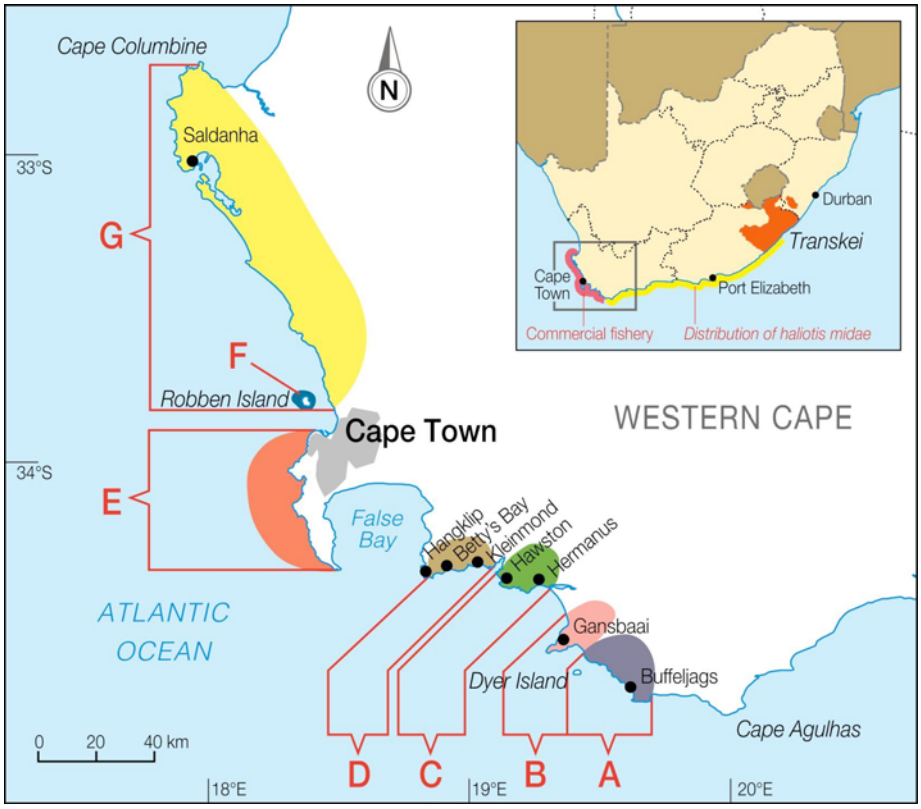


Figure 2.2: Location of the abalone case study, which largely focussed on Zones A-D of the commercial fishery (adapted from Tarr 2000)

The abalone case study, assessed from a regional perspective, has provided critical insights into the underlying factors that have influenced fishers' behaviour over time. It highlights important socio-economic and political issues related to the segregation and marginalisation of small-scale fisher communities, it has been influenced by a wide array of government interventions that have had little long-term success and it has a sophisticated informal fishery that has grown and thrived over time. Finally, the closure of the commercial fishery has largely been attributed to high levels of 'poaching' (DEAT 2007b), and law enforcement has clearly not succeeded in preventing the decline of the resource. Thus, the abalone fishery is a critical case study to examine in order to understand the factors influencing fisheries compliance.

3.1.2 The West Coast Rock Lobster Fishery

Compliance issues and concerns related to the WCRL fishery were first introduced to the researcher during in-depth research on the abalone fishery in 1995 (Hauck 1997).

Although there were cases of arrests and confiscations related to the lobster fishery (Hauck 1997), the focus of law enforcement was on the lucrative abalone fishery. Over the years, as the abalone resource became depleted, more and more informal fishers turned to the lobster fishery as a source of income and livelihood. Interestingly, as will be discussed in the case study chapters, there was an ecological phenomenon that saw a southerly migration of lobster to historically important abalone areas from the mid-1990s (Tarr *et al.* 1996). This had a detrimental impact on abalone recruitment, but fishers spoke of a new abundance of lobster. While initiating the research on the abalone fishery for this study, the importance of the informal lobster fishery was highlighted and it became evident that this was an important fishery that required a deeper understanding. This relates back to Robson's (2002) assessment that one case study may inform the choice of another.

Particularly interesting at the outset of this research was that many of the issues raised by the informal abalone fishers 10 years ago, were now being highlighted by the informal lobster fishers. Further, within management circles, and within the formal WCRL fishery, scientists and industry reviewed the decline (and ultimate closure) of the abalone fishery as a 'red flag' for the lobster fishery. There was a fear that the informal lobster fishery was growing in size and organisation and that the WCRL fishery was facing the same fate as the abalone fishery. Thus, there was potential that the evolution of the abalone fishery could shed light on the current developments in the informal lobster fishery.

Contrary to the regional approach used in the abalone fishery, this case study focussed on one traditional fishing community where informal lobster fishing was a key livelihood strategy for many fishers. With no previous in-depth research experience on the lobster fishery, it was important to understand the compliance issues from a micro-level context, whereby intensive research could be conducted on the methods of operation, social relations and patterns of behaviour. Key to this understanding, as was experienced in the initial research on abalone, was the development of important relationships and trust with fishers themselves.

The community of Hangberg, which is situated above the Hout Bay harbour and located in the Cape Town municipal area, was chosen for this study (see Figure 2.3).

In 1950, Hout Bay was zoned as a white residential suburb under the Group Areas Act (41 of 1950), while the harbour was reserved for Coloured occupation (Isaacs 2003). This harbour community became known as Hangberg, where many of the traditional fishers have remained. Considered a traditional fishing community, with historic links to the lobster fishery (Van Sittert 1985), it has been identified by the authorities and industry as a 'problem area' due to perceived high levels of 'illegal fishing' or 'poaching' (Branch *et al.* 2007). This, along with the fact that it is situated adjacent to a Marine Protected Area, poses important questions in relation to compliance (see Figure 2.3).

Figure 2.3: Map highlighting location of Hangberg and the adjacent Table Mountain National Park Marine Protected Area (adapted from DEAT 2004c).

This case study has also drawn heavily on the work of van Sittert (1985, 1993, 1994), who has provided a rich historical understanding of the development of the commercial WCRL fishery from the late 1800s and the emergence of the informal

fishery and black market. This research provided a critical historical context that informed the conceptual framework and the theoretical analysis.

Thus, research with fishers in Hangberg has provided important insights into an understanding of small-scale fisheries compliance. It is a marginalised community in terms of socio-economic circumstances and access to resources, it has been directly affected by fisheries transformation policies, it is located adjacent to a Marine Protected Are (MPA), which further limits access, it highlights interesting institutional issues (due to the existence of the MPA), it is considered a 'hot spot' for poaching from the perspective of industry and government and it has an important historical lobster fishery. In addition, valuable research conducted in this area in the past provided important background information on social, economic and political issues (Isaacs 2003, van Sittert 1985, 1993, 1994).

3.2 Literature Review

An extensive literature review was conducted throughout the research process as a means of exploring and developing theoretical concepts that informed the research, as well as gathering information to enhance understanding of the case studies. An academic review of published literature was instrumental in developing and refining the conceptual framework. Various theoretical ideas have been drawn on for this research, including fisheries governance, fisheries compliance, green criminology, critical criminology, environmental security and systems thinking. Terre Blanche and Durrheim (1999) explain that as the research process unfolds, the literature review becomes more focussed and key concepts more refined. This is the case in this study, whereby concepts and theories have evolved throughout the process of data collection, data analysis and ongoing engagement with the literature.

In addition to the academic literature, the empirical research in this study was significantly enhanced by drawing on previous research reports and government documents related to small-scale fisheries in South Africa, the abalone fishery and the WCRL fishery. Some of these documents were not always easily accessible, and were often accessed via consulting work for DEAT or through established

relationships within government or other institutions. All confidential documents were either used only as background information or permission was received to refer to them. The government documents, in particular, provided important insight into management approaches and decision-making.

Other documentation, such as unpublished research reports, dissertations and policy papers, provided important contextual information for both case study sites. Some of this information was integrated into the case study analyses and others were important for stimulating new ideas.

3.3 Fieldwork

There were three key phases of fieldwork in this study. The first was exploratory research in each of the case study sites, when key informants were identified and critical issues were highlighted. The second phase was the testing of the conceptual framework in the field through refined research questions. The third phase involved follow-up fieldwork with key informants as a means of refining the framework and developing theory.

The duration of the research process was over a period of 2.5 years, with intensive fieldtrips ongoing for two of those years, but interspersed with other data collection activities. It is important to note that the nature of the research was reflexive and not rigid in its approach. Thus, fieldwork trips were often influenced by particular activities in the communities, policy decisions that needed to be understood or due to other circumstances related to the case study. Similarly, absences from the field were influenced by the timing of policy and management meetings in Cape Town, or the heavy presence of law enforcement in certain areas which required a 'stepping back' from the research. As a result, although there were three phases of fieldwork, the timing of each was influenced by external influences, and fieldtrips varied from 1-10 consecutive days. In addition, telephone contact was maintained with key informants throughout the duration of the research process.

For the abalone case study, Zones A-D were visited for 50 days over a two year fieldwork period. Access to this area was gained through previous research contacts, which proved highly valuable in terms of trust already being established. These historical relationships also saved the researcher time during the fieldwork as many key issues were discussed at first meetings, and further informants were introduced quickly.

In the Hangberg case study, gaining access to informants took longer to establish, although one key informant was identified at the outset and proved to be a key roleplayer throughout the research process. Initial fieldwork was spent walking in the streets, chatting informally to people in their gardens or at the shops. It did not take long to hear stories of fishing and to be introduced to fishers 'who catch lobster over the mountain' (i.e.: informal fishers). Although people spoke openly about their concerns and challenges, it was only months later that some confessed that they had suspected that I was a police officer!

Due to the illegal nature of informal fishing, it was important at the outset to develop relationships with people in the Hangberg community. Thus, the strategy that was undertaken was to identify one main informal fishing group and develop strong contacts as a means of understanding the processes and behaviours close-up. A relationship with a key informant was then established who openly welcomed the researcher into his fishing circle of 16 crew. It was with this group that two years of fieldwork was intensively undertaken. Other informal crews and key informants were also contacted and additional information gathered. Seventy days of focussed fieldwork was undertaken over this two year period. Time in the field varied from one day visits to daily visits over 7-10 days. The researcher was also involved in many shorter visits (half day) to meet informal fishers to discuss particular issues or to attend meetings and workshops. More days were spent conducting fieldwork in this case study due to a lack of previous research on the WCRL fishery, and due to the time it took to establish trust with key informants.

3.4 Participation in Meetings

In addition to the fieldwork conducted in both case study areas, important information and interaction emanated from formal meetings between the various stakeholder groups. These meetings often related to management issues and policy development processes, where the researcher either observed or participated in discussions. All of these meetings took place in Cape Town, where many fisheries-related gatherings are held due to proximity to the coast and the fact that MCM's head office is located there.

These formal meetings were particularly important for the abalone fishery case study, which adopted a regional perspective and explored broader management approaches. Opportunities to participate in government-fisher meetings in the abalone case study were likely more accessible due to the historical involvement of the researcher in this fishery and the relationships that had been developed. Thus, 18 management meetings related to the abalone fishery were attended between 2006 and 2008 (see Appendix 1). These meetings included those relating to the Abalone Scientific Working Group (ASWG), as well as those relating to the broader management of the fishery. The ASWG largely focused on scientific issues, specifically relating to the Total Allowable Catch (TAC), and was also involved in making recommendations regarding the closure of the fishery. Broader management meetings were less frequent, but were convened to discuss TAC allocations at the beginning of every fishing season, permit conditions, compliance and other key issues (such as the closure of the fishery). These meetings largely involved representatives of the commercial abalone fishers and members of MCM. They were an important method for hearing the perspectives of the different stakeholder groups, observing interaction between the different groups, being updated on broader policy developments and government decisions and maintaining personal relationships with different people. During times of absence from the field, these meetings allowed the researcher to be in contact with key informants and remain abreast of key issues.

In the WCRL fishery case study, three compliance-related meetings were attended that included rightsholders and MCM. Although the focus of this case study was

more on local level processes and activities, these meetings provided important insight and a broader understanding of the fishery as a whole. Other formal meetings, such as those related to the development of the small-scale fisheries policy, were also informative and contributed to an understanding of stakeholder perceptions, issues of concern and areas of conflict (see Appendix 1 for list of meetings). As with the abalone case, these meetings were also important for facilitating contact and interaction with key informants.

3.5 Interviews

Different methods were used in this study to ask questions and elicit information from people participating in the research. These included unstructured and semi-structured interviews and focus groups, all of which entail a level of flexibility, informality and openness (Neuman 2006). Semi-structured interviews are commonly used in qualitative research to explore facts, behaviour and beliefs or attitudes, as a means of seeking to understand what people know, what they do and how they think or feel (Bryman 1988, Robson 2002). They largely use open-ended questions, but are guided by the key themes of the researcher. This allows a flexible means with which to explore complex issues and to understand people's experiences, which Byrne (2004) argues is particularly valuable when interviewing people whose voices have been ignored in the past. In the abalone case study, there were 55 people who participated in semi-structured interviews, which included 38 abalone fishers (both formal and informal), eight law enforcement personnel, four fisheries authorities[3] and five community members that were not directly involved in the fishery.

In the WCRL case study, there were 47 people who participated in semi-structured interviews, which included 26 lobster fishers (mostly informal, but some formal), five industry representatives, seven law enforcement, six community members and three fisheries authorities. In addition, some informants were interviewed that were relevant for both case studies, which included government scientists, fisheries managers and law enforcement. In total, for both case studies, 185 interviews were conducted with

[3] The category 'fisheries authority' includes both scientists and managers at MCM

102 informants[4] (see Appendix 2 for a list of interviews conducted). Many of the participants in the research were interviewed more than once, particularly those who became key informants due to their particular knowledge and expertise.

Unstructured (informal) interviews were also used, particularly in the Hangberg case study, where opportunities were seized to speak to people in the research setting, often during observation, when fishing activities were taking place. Interviews of this nature also took place with government authorities, fishers and other stakeholders following meetings, workshops or at other opportunities. These interactions were not documented as 'interviews' per se, but were an important means with which to gather information and remain updated on key issues.

Focus groups were used to bring together stakeholder groups with similar experiences to discuss key issues and debate different concepts and ideas. A key feature of this method is the interactive context of the discussion, and is often highlighted as a complementary method to interviewing (Tonkiss 2004). Focus groups were held with fishers and with law enforcement officials, sometimes initiated by the author, and sometimes initiated by the groups themselves, who wanted to provide input into the research (see Appendix 2 for list of focus group meetings). The size of these groups varied, with some comprising 15-30 people, which then required careful facilitation. In some cases, these meetings became more like workshops, and participants were broken into smaller groups for discussions and other activities. Focus groups with law enforcement officials proved particularly interesting as the different approaches of government agencies were debated and smaller group work provided the opportunity to engage on specific issues. For example, two half-day 'workshops' with the marine law enforcement section of Table Mountain National Park (TMNP) provided critical insight into the perceptions, approaches and challenges of this group. Important theoretical concepts were debated amongst TMNP staff and provided important insight into their activities. A half day focus group session with fishers in Hangberg also provided an opportunity to give the research legitimacy and to initiate a relationship with individuals. This was then a springboard for one-on-one

[4] In addition to these semi-structured interviews, people also participated in focus group meetings (see Appendix 2). Although there was some overlap with participants, the focus groups also included additional people who were not interviewed individually.

interviews for many of the fishers that had attended, and who were therefore willing to meet.

3.5.1 Sampling

Different methods of identifying informants to be interviewed were used in the field. Snowball sampling was undertaken at the outset, in which specific individuals were interviewed, and then other fishers and key informants were identified through them. Robson (2002) states that this technique is advantageous when you are researching a clandestine group, where it can be difficult to reach certain individuals. This was the case in that relationships were built with certain key informants in the informal sector, who then provided a sense of legitimacy to the research and prompted other informal fishers to become involved, who may not have met the researcher otherwise. In addition, in the tradition of grounded theory, purposive sampling was also used, whereby specific people were sought out in the research as a means of assisting in the generation of theory (Byrne 2004). For example, organised informal fishers involved in syndicates were specifically targeted for interviews in both case studies as a means of understanding the evolution of their involvement in informal fishing. Thus, these fishers were selected because they had significant relevance to the research topic (Tonkiss 2004).

During the research process, it was also important to reflect on who was being interviewed, whether some groups were unwilling to meet and whether new approaches needed to be taken to identify research participants (Byrne 2004). Those informal fishers, for example, who felt a significant sense of injustice, were more willing to meet and talk than those who were more organised, and less enthusiastic about discussing their operations. It took a longer time to gain access to the latter group, and required frequent informal interaction to build relationships. Further, attempts at reciprocity contributed to gaining trust amongst the fishers. For example, a workshop was initiated in Hangberg and all 'informal rock lobster fishers' were invited to attend, with invitations being spread by key informants through word of mouth. At the beginning of this workshop, an informal presentation was given to feed back to the group on important policy processes that affected them, as well as the

details of a Non-Governmental Organisation (NGO) that could provide further assistance and information. This workshop was a catalyst to various activities that took place amongst the fishers and they saw this study as an important contribution to that process. Similarly, in the abalone fishery, the researcher's presence and participation in formal meetings between government and fishers increased the legitimacy of the research in the eyes of the fishers, and they acknowledged the benefit of 'outside expertise' in these discussions.

3.6 Participant Observation

Qualitative field data inevitably includes elements of observation, where researchers 'pay close attention, watch and listen carefully' (Neuman 2006: 396). Ethical issues emerge here, which will be discussed below, in terms of gaining access to the informants, particularly where 'illegal' activities are taking place (Walsh 2004). Nevertheless, rapport was built in both case studies as people openly spoke to the researcher, met for interviews and allowed observation in meetings and in the field.

Participant observation was used particularly in the Hangberg case study as a means of understanding the informal fishing activities: how fishers operate, how they perceive law enforcement efforts, how the different groups interact and the level of organisation. Observation provides a good understanding of the context of a situation, particularly when studying sensitive issues or illegal activities (Bryman 1988, Hagan 1982). Information is gathered that may not have been accessible otherwise. For example, on many occasions the researcher observed fishing activity from start to finish (why decisions were made to fish, preparing the gear, harvesting and sale), which provided an understanding of the fishing system that interviews on their own would not have revealed. In some cases this involved up to eight hours of activity, often waiting for long periods of time on the mountain or on the rocks. It was during these times that informal (unstructured) interviews were conducted with fishers involved in different aspects of the fishery system. Important information was collected during this time, which was an accessible means with which to meet people. In the abalone case study, due to previous observation-related research and a better

understanding of informal fishing operations (Hauck 1997, Hauck and Hector 2003), more focus was placed on meeting and interviewing the various stakeholders.

Observation was also used more generally in both case studies, as a means of being aware of the social setting, and interactions that take place in it (Neuman 2006, Walsh 2004). This included an awareness of how people lived, the way they behave in certain circumstances and how they interact with different people, or other stakeholder groups. For example, observation was used in interviews, workshops and in joint meetings between the stakeholders (particularly government and the fishers), where body language was highly informative. These different aspects of observing, therefore, provided important additional information to what emerged directly from the interviews.

4. DEVELOPMENT OF A PRELIMINARY CONCEPTUAL FRAMEWORK

As outlined in Figure 2.1, this research involved an iterative process that was guided at the beginning by a preliminary conceptual framework. This framework, which will be discussed further in Chapter 3, was developed through a literature review and through exploratory fieldwork. Further, it drew extensively on the previous experience of the researcher, who has conducted empirical research on small-scale fisheries in South Africa for over a decade. This previous experience has been important for this study and has provided valuable insights into the conceptual framework. The abalone case study, in particular, has the benefit of a longitudinal perspective, which has allowed an assessment of the evolution of the fishery and how fisher behaviour has changed over time. In addition, since the initial research was conducted with abalone fishers in 1995, the author has been able to maintain good relationships with the fishers and with government authorities. In some cases, this presented a privileged position whereby confidential information, government reports and law enforcement data were provided, which may have been difficult to access otherwise.

Although interaction was initiated with stakeholder groups in the region, previous studies that focussed on the abalone fishery in specific communities in the area were heavily drawn on for the local level context. This was particularly interesting due to the fact that many who were operating informally 8-10 years ago, and who were fighting for formal (legal) access, were now rightsholders in the commercial fishery. These fishers, some of whom maintained their links with the informal fishery, provided a particularly rich account of their transition to the formal sector and the decisions that they had made over time.

Further, the researcher's involvement in other studies related to small-scale fisheries in South Africa, as well as direct involvement in fisheries policy processes and implementation strategies, provided additional insight into government decision-making, policy processes and vested interests among different stakeholder groups. Participation within these processes also meant that access to government authorities, fisher representatives and NGOs was facilitated as previous relationships had been developed. However, although previous research and experience provided significant background to this study, and facilitated entry into the research domain, it certainly did not provide a 'clean slate' with which to embark on grounded theory research. Nevertheless, the notion of 'objective researcher' has long been challenged, and some pre-determined assumptions are more or less considered a 'given' in social science research (Seale 2004c).

The preliminary conceptual framework was refined through a process of data collection and analysis. Robson (2002) states that the development of a conceptual framework, which is often a diagrammatic illustration of preliminary thoughts, is beneficial for informing research at the outset. Neuman (2006: 186) explains that conceptualisation is an important process during the beginning stages of qualitative research. It is a means with which to identify abstract ideas, work with them and refine them throughout the research process. Theories are then drawn from conceptualisation as the research continues to organise and analyse the data in order to 'make sense' of it. The preliminary compliance framework for this study provided important guidance in developing the interview schedule for the in-depth fieldwork (Bhatt 2004). Key themes to investigate in the research were highlighted and relationships between them needed to be explored. Thus, initial ideas outlined in the

conceptual framework were examined in light of the data as a means of theorising about them.

5. DATA ANALYSIS

The information that emerged from the fieldwork, the interviews and other methods, were then coded into themes as a means of identifying patterns in the data (Seale 2004b). These themes were drawn from the conceptual framework, and expanded where necessary, to clarify key factors that were influencing compliance behaviour. All notes emanating from the fieldwork, interviews, meetings and workshops were collated for data analysis. In more formal settings, notes were often taken throughout the interaction, but in the field, the researcher opted for 'jotted notes', which are immediate memory triggers, or no notes at all (Neuman 2006). Only *after* the interview or field experience were detailed notes written, with an effort to document information as soon as possible after it was collected. Whenever possible direct quotes were recorded, some of which were used in the analysis and write-up.

The process of data analysis provides the 'social context' of a particular phenomenon, creating theory from the information that was being collected (Neuman 2006). Key to this was understanding not only the factors that influence compliance, but understanding how, and why, compliance changes over time, and the links that exist between the different factors. Thus, the data analysis process was ongoing. It was important to constantly reflect on the empirical research, which in turn shaped further data collection.

The development of the conceptual framework emerged from the data analysis, exploring the concept of a fishery system, the need to integrate disciplines in approaching fisheries problems (such as compliance) and the importance of understanding the complexities and linkages associated with fisheries crises (Berkes *et al.* 2001, Charles 2001, McClanahan and Castilla 2007). The case studies, therefore, which are the foundation of the empirical research, were studied, and described, as fishery systems (Charles 2001).

6. ETHICAL CONSIDERATIONS

Ethical issues are critical to social science research and our interaction with human populations. Fundamental to establishing strong ethics during research are issues such as trust, consent and confidentiality (Kelly and Ali 2004). Three key ethical issues were raised during this research. First, every person that was interviewed was granted anonymity, ensuring that the information that they provided would not be directly linked to them as an individual. Many people were open with their comments, but some felt at risk (mainly informal fishers) and others feared conflict within their communities. As a result, all names have been removed from the case study analyses with each individual given a number linked to the fishery case study. As a result, when verbatim statements are provided, the reference is a letter (A for abalone fishery and L for lobster (WCRL) fishery) and a number (indicating the informant) in order to maintain anonymity (for example: A31). In addition, different stakeholder groups were identified that included fishers, fishing industry, community members, law enforcement personnel, fishery managers and researchers. References to interviews and statements are therefore contextualised to identify the source of the statement, and all informants are listed in Appendix 2.

The second ethical issue relates to observing and reporting on illegal activities. Although this research was partially funded by the national fisheries authority, at no time did fishery compliance staff approach the researcher for information on informal fishing on either of the case study sites. One senior staff member of Table Mountain National Park, however, requested a presentation to feed back the research results, not to inform them of illegal activities, but to explore possible alternatives to addressing the problem. Although there were possible implications of being present during informal fishing activities, on two occasions when law enforcement staff saw the researcher, they simply waved, knowing the nature of the research. Nevertheless, it was a conscious decision at the outset to set boundaries with the fishers and, in principle, all offers of informal lobster or abalone were kindly refused.

The final ethical issue, which proved particularly difficult, was related to raised expectations. This research has been conducted at an important time of transition for

both the abalone and WCRL fisheries. The bulk of the in-depth fieldwork in the abalone fishery, for example, was at a time when there were significant reductions in the formal TAC, and threats were in place to close the fishery. To some extent, various stakeholders saw this research as a means to 'voice' their concerns to government about closing the fishery. There were expectations that the research could 'help them' by providing additional pressure to the relevant authorities, through the information that was being collected. Although there was a sense of obligation to share the research results at government meetings, the closure of the fishery was beyond the influence of this study, and took place anyway. In the Hangberg case study, as the researcher was withdrawing from the fieldwork, an Interim Relief Permit was announced for Western Cape fishers, and the informal WCRL fishers saw this as an opportunity to gain legal access. This research was somehow seen to be linked to this process, raising expectations that the fishers involved in this study would be allocated permits. This, of course, did not happen and a much more complicated process unfolded that resulted in conflict. Ethical decisions needed to be made in terms of the extent to which the researcher could share information and attempt to influence the process.

There is no doubt that a sense of reciprocity was an important issue throughout this research. As Hagan (1982) states: 'the research subjects help the investigator; now what is owed to them?' (p. 118). The researcher thus emphasised to all stakeholder groups that the research results emanating from this study would be fed into the new small-scale fisheries policy process. Further, the researcher agreed to present the research process and preliminary results when requested at meetings and workshops as a means of sharing the information and encouraging debate. Also, due to the researcher's involvement with various stakeholder groups in each fishery, she was also asked at times to facilitate workshops or meetings. Importantly, due to the fact that the study was co-funded by MCM (which had its challenges, as already discussed), the researcher had a responsibility to ensure that the research results were fed back to managers and decision-makers in a way that would allow them to understand compliance differently.

7. CONCLUSION

A number of approaches guided this research and several methods were used to collect empirical data and to theorise about small-scale fisheries compliance in South Africa. This diversity reflects the complexity of fisheries management and acknowledges the need to broaden our understanding of fisheries challenges beyond traditional paradigms (Berkes *et al.* 2001, Charles 2001, Degnbol *et al.* 2006, Kooiman *et al.* 2005, McClanahan *et al.* 2008). The focus on small-scale fisheries generally in South Africa, and then specifically through the two case studies, further highlighted the diverse factors influencing fisher behaviour. The case study method was particularly relevant as a means to build theory and provide new insights based on empirical evidence (Eisenhardt 1988).

Throughout the iterative research process, data collection, analysis and conceptual development were intertwined, but the dilemma of balancing academic concepts with policy change were increasingly apparent over time. This was particularly challenging due to this study being partially government-funded by the fisheries authority, which meant that competing perspectives needed to be acknowledged. However, in attempting to understand *why* fishers complied with formal laws or not, a new perspective emerged in terms of conceptualising compliance behaviour. As Silverman (2004) explains, social science research should use its 'theoretical imperatives [to] drive it in a direction that can offer practitioners, managers and policy makers *new* perspectives on their problems' (p. 61). In this way, the 'usefulness' of the research can be specifically relevant in the local context, in terms of contributing to a new understanding of an 'old problem', and informing policy and practice in South Africa. Further, from a broader perspective, it is hoped that the empirical research in this study will contribute more widely to an emerging conceptual understanding of small-scale fisheries compliance.

CHAPTER THREE

RETHINKING SMALL-SCALE FISHERIES COMPLIANCE: THEORETICAL CONTEXT & PRELIMINARY COMPLIANCE FRAMEWORK

1. INTRODUCTION

According to a recent report by the United Nations Food and Agriculture Organisation, fisheries around the world are in crisis (FAO 2005c). Hardin (1968) would argue that this is so because of a 'tragedy of the commons', whereby individuals pursue their own self-interest at the expense of the welfare of a group. Key to this model is the assumption that individuals act rationally and choose to maximise their own welfare over others (Schlager 2002). The state, therefore, is required to intervene to protect and control natural resources and to prevent over-exploitation. Traditional compliance strategies also embrace this approach and are founded on the assumption that fishers are rational actors and their behaviour is influenced by the costs and benefits of their actions (Sutinen *et al.* 1990).

Over the past three decades, alternative theoretical approaches to Hardin's model have been proposed, which recognise that there are many circumstances in which individuals cooperate to manage shared resources (McCay and Acheson 1987, Ostrom 1990, Schlager 2002). In Ostrom's (2000) discussion of collective action and the development of rules and norms, she identifies a number of principles that are key to successful self-organised resource regimes. These include the presence of rules and the monitoring and sanctioning of free-riders. Dietz *et al.* (2003) argue that a key aspect of effective commons governance is ensuring rule compliance. However, whether formal or informal strategies are in place to enhance compliance, they argue that those who impose the rules must be seen as 'effective and legitimate' or resistance and evasion will be inevitable (p. 1911). Jentoft (2000, 2004b) however, cautions that rules are more than just a means to influence a fishers' choice of action,

but should in fact reflect the norms and values of the fishers themselves. By doing so, a sense of moral obligation to comply with rules is enhanced.

Thus, it is argued in this thesis that a central premise to understanding fisheries compliance must relate directly to how rules and laws are developed, and by whom. Issues of power, and how those in power determine what is to be considered and controlled is central to this understanding. Drawing on criminology and security discourse, this chapter attempts to rethink fisheries compliance by linking the objectives of social justice and environmental justice in order to understand how 'harm' is defined, and subsequently how laws are developed. Furthermore, by drawing on the experiences of small-scale fisheries in South Africa, it is argued that an understanding of compliance should not take law to be a given, but should challenge existing laws, especially those that further marginalise small-scale fishers.

2. UNDERSTANDING COMPLIANCE

Compliance is generally understood as the behaviour of people to conform to rules that have been developed to influence actions (Tyler 2006). These rules may exist as formal laws or as informal norms, thus being monitored and enforced through either formal or informal mechanisms, and sometimes by both. Studies of compliance have been conducted over the past decades by scholars in a range of disciplines, including criminology, sociology, psychology, economics, political science and anthropology (Gezelius 2003, Tyler 2006, Zaelke *et al.* 2005a). In the sphere of the natural environment, questions of compliance have largely related to large-scale industrial actions such as pollution, transportation of hazardous wastes and destruction of natural resources (Zaelke *et al.* 2005b).

Compliance research has largely been rooted within two schools of thought, which have been thoroughly outlined by Gezelius (2003) and will not be discussed in detail again here. In brief, one school of thought explores the 'rationalist' models of deterrence and law enforcement that assume rational actors calculate costs and benefits of their actions, and the second explores the 'normative' models that investigate norms, morality, legitimacy, and social and cultural influences on

individuals' decisions to comply with rules and laws. These different perspectives to understand compliance have also translated into different methods and strategies for regulating behaviour.

If one explores the development of fisheries compliance theory, the rationalist perspective, which emerged from an economic analysis of non-compliant behaviour, dominated its earlier years (Anderson and Lee 1986, Sutinen and Andersen 1985). This approach understood non-compliance largely as a result of external influences (such as rewards and punishment), resulting in individual fishers acting in their own self-interest. Thus, based on this perspective, fishers will choose to comply (or not) based on economic gains and severity of sanctions. This school of thought has significantly influenced fisheries management worldwide (Raakjær-Nielsen 2003), and has generally led policymakers to increase deterrence, usually through greater law enforcement efforts (Hatcher *et al.* 2000).

The shortcomings of the above approach, however, have been outlined in the literature over the past decade. Other factors have been identified that help shape compliant behaviour. These include moral and social norms, social pressure, perceived legitimacy of management rules and laws, as well as the management authority, and fisher involvement in decision-making and management (Gezelius 2002, 2003, 2004, Hatcher *et al.* 2000, Hønneland 2000, Jentoft 2000, Kuperan and Sutinen 1998, Kuperan *et al.* 1997, McKinlay and Millington 2000, Raakjær-Nielsen 2003, Raakjær-Nielsen and Mathiesen 2003, Sutinen and Kuperan 1999). These studies have thus explored mechanisms to increase normative support for rules and laws, such as informal sanctions and participatory management.

In his extensive review of compliance theory, specifically as it relates to fisheries, Gezelius (2003) argues that these two models of understanding behaviour – rational choice theory and theory of normative action - are not mutually exclusive. Rather, elements of both are important and necessary for formulating an integrative theory of fisheries compliance. While combining these schools of thought may arguably be fruitful, or even necessary, in order to understand compliance, it is questionable whether it is sufficient in order to fully understand it.

This chapter, therefore, challenges traditional compliance theories, arguing that a conceptual understanding of compliance *first* requires a critical analysis of how law has evolved, its history and the power dynamics that have shaped it (Figure 3.1). Thus, the law itself needs to be questioned, including how it is defined, and by whom. Although this perspective challenges current compliance theories to think beyond the law, it is particularly relevant in a developing country context, where social and economic inequities are rife.

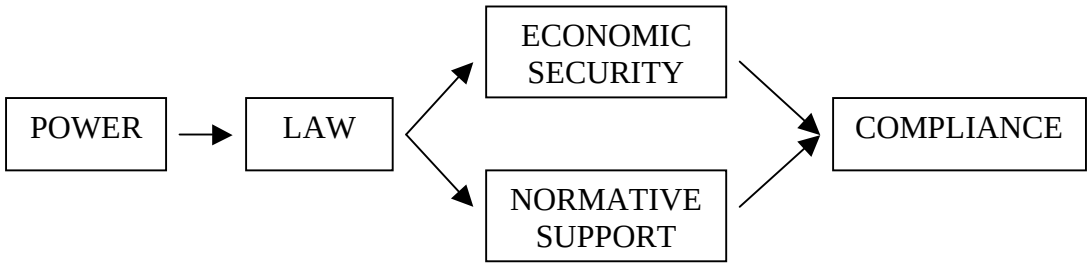


Figure 3.1: The influence of power and the formation of law in understanding fisheries compliance (drawn on from comments by Gezelius, *in litt*, 2007).

Empirical research for this study is based on case studies from South Africa, a relatively young democracy (since 1994), which has experienced a plethora of new laws over the past decade and is grappling with a range of social, economic and environmental challenges. In this context, and arguably in relation to fisheries more generally, it is proposed that law cannot be taken as a given, and needs to be questioned in relation to fisheries compliance discourse.

3. STEPPING BACK: WHERE DOES THE ANALYSIS BEGIN?

Criminologists have long been attempting to understand the construction of crime, the definition and impact of harm and the responses required to minimise such harm. In the 1970s, the tradition of critical criminology emerged, which developed a political economy approach to crime and exposed the role of power in understanding and defining crime (Taylor *et al.* 1973). Thus, a broader conceptualisation of crime was embraced which argued that it needed to be understood within a social, political and

economic context, that inequalities needed to be recognised and that criminological analysis should not be limited to what the state defined as illegal (Barton *et al.* 2007a).

Similar debates, relevant to the topic of this thesis, occur in the area of environmental harm, determining under what conditions an act should be conceived of as an environmental 'crime', and the resulting strategies to address 'crime' that are developed based on a particular perspective (White 2003). The emerging focus over the past decade on a wide variety of environmental issues in the discipline of criminology has led to what has become known as 'green criminology' (Beirne and South 2007, Lynch and Stretsky 2003, South 1998). Although there are debates within this growing discourse (Halsey 2004), general principles relate to the strong links between human rights and environmental rights (Halsey 1997, Lynch and Stretsky 2003), the importance of the role of law in defining environmental 'harm' (White 1999, 2003) and the necessity to embed an understanding of harm, and responses to such harm, in a broader contextual frame (South 1998, 2007).

Key to this discussion is reference to the role of power in determining what behaviours become the focus of law and why. It is argued that environmental crimes are socially constructed, are shaped by relations of power, are largely created to protect capitalist interests and tend to marginalise the powerless (often recognised by class, race and gender hierarchies) (Lynch and Stretsky 2003, White 1999, 2003). Thus, environmental harms and social injustices are intertwined (White 2007). The eco-human rights approach to environmental harm, for example, aims to build a bridge between the objectives of human rights movements, to attain social justice, and the objectives of environmental groups, to attain ecological well-being (Halsey 1997). Halsey argues that criminologists need to look for solutions to the environmental crisis by understanding the 'roots' of harm, particularly the social, political, cultural and economic context (Halsey 1997). This is further emphasised by Barton *et al.* (2007a,b), who argue that social harms need to be thought of less in terms of criminal justice, and more in terms of social justice. The aim of this chapter is to explore these theoretical concepts within the area of small-scale fisheries, and to depart from existing compliance literature by critically addressing the role of law in criminalising fishers, and understanding more broadly the factors that influence behaviour.

4. COMPLEX SOCIAL AND ECOLOGICAL SYSTEMS

In order to better understand the factors influencing (non)-compliant behaviour and thus effectively respond to them, it is necessary to gain a broad understanding about the inter-relationships that exist, and the complexities that are evident, in a system where people and the environment co-exist. In criminological discourse, this would be about defining and responding to both social harm, and environmental harm, which is relevant to critical criminology and encompassed in the eco-human rights perspective (Halsey 1997, White 2003). Ultimately, this is about achieving social and environmental justice by addressing the inequities in the current social system whilst simultaneously sustaining the ecosystem (Lynch and Stretsky 2003). As Halsey (1997) explains, the connection between the conditions that degrade human beings and the conditions that degrade the natural environment need to be acknowledged. Thus, the notion of 'harm' in this context understands 'the well-being of nonhuman life to be an *indispensable* prerequisite for human well-being…human rights [are] inextricably bound to the well-being of nonhuman life' (Halsey 1997: 228, italics in original).

This recognition of the need to obtain human and environmental rights, and the relationship between the two, is also embedded in a new discourse on security. Whereas traditional perceptions of security were largely concerned with a state's ability to counter external (largely military) threats, this has been broadened to include political, economic, social and environmental threats (Buzan *et al.* 1998). The concept of human security has received growing attention in recent years and emphasises the importance of protecting people's fundamental rights, such as freedom, peace and safety, access to resources and the basic necessities of life and an environment that does not threaten health and well-being (Commission on Human Security 2004, UNDP 1994). It is argued that these, in fact, are the greatest security risks to states and government. As Thakur and Newman (2004) state, 'these issues *become* security concerns when they reach crisis point, when they undermine and diminish the survival chances of significant proportions of the citizens of society, and when they threaten the stability and integrity of society' (p.3, italics in original). Harm, in this context, relates to the insecurity of people around the world in terms of

sustaining basic human rights. Halsey (1997) explains that 'criminal conduct [or harm] – from a critical human rights position – becomes equated to the actions of those agencies, structures, and bastions of power that prevent the universal implementation of these rights' (p. 227).

In terms of the environment, the notion of environmental security gathered momentum in the mid-1990s (Myers 2004), with a specific focus on the threat of environmental deterioration on human well-being, but increasingly including the impact of threats on the ecosystem in and of itself (Buzan *et al.* 1998). There is widespread recognition in the literature that environmental security encompasses many other aspects of security (including political, economic and social) and therefore is intertwined with social inequity and injustice, poverty, societal vulnerability, weak political structures, population growth, unsustainable economic growth, industrialisation and growing demands for resources (Elliott 2001, Haque 2004, Myers 2004, Najam 2004, Thakur and Newman 2004).

In fisheries, however, the connection between the fishers themselves, and the resources they harvest, has not always been acknowledged. Traditionally, marine resources have largely been allocated and managed through scientific expertise that has focussed on national economic objectives rather than the people and livelihoods that are affected (ACFR 2003, Degnbol *et al.* 2006). Thus, fisheries management has largely been the responsibility of fisheries biologists and economists, which has resulted in the neglect of the experience of traditional fishers (Pauly 2006). Even when there were attempts to 'develop' fisheries in developing countries, 'the goals of fisheries development were generally "biological" (high catches, utilisation of all resources, etcetera), to the near complete neglect of social goals such as employment, community well-being, food security, etcetera' (Pauly 2006: 9).

However, more recently, the growing role of social sciences in the area of fisheries management has highlighted the importance of understanding broader social issues, and linking disciplines in order to secure both resources and people (Acheson 2006, Degnbol *et al.* 2006, Johnson 2006, Kooiman *et al.* 2005). This is explicitly highlighted by Chuenpagdee *et al* (2005), who state that fisheries challenges need to be tackled by acknowledging the 'interconnectivity of concerns for ecosystem health,

social justice, livelihoods and food security and food safety' (p. 25). This link, between social and ecological systems, is emphasised as being critical to understanding, and ultimately achieving, the sustainability of fishery systems (Berkes *et al.* 2001, Berkes *et al.* 2003, Charles 2001). It is argued that natural and social systems are complex in themselves, and the interactions (and links) between them create even more complexity (Acheson 2006, Berkes *et al.* 2003, Charles 2001). Thus, multidisciplinary approaches are required to 'bridge disciplines and scales, and blend theory and practice, if we are to understand these linked complex systems and, on the basis of this knowledge, to design more effective systems of governance…' (Zaelke *et al.* 2005a: 37).

5. UNDERSTANDING FISHERIES COMPLIANCE IN SOUTH AFRICA

South Africa, a country that witnessed its first democratic election in 1994, and has undergone a decade of fisheries transformation, is facing a number of challenges in terms of small-scale fisheries. The linkages between social and ecological systems are glaring as poverty-stricken coastal communities are increasingly relying on diminishing fish stocks (Branch *et al.* 2002b, Cardoso *et al.* 2005 Sowman *et al.* 2008). However, in South Africa, the inextricable link between human rights and environmental rights is enshrined in the Constitution of the Republic of South Africa (1996), which is the point of departure for all law and policy-making in the country. Embedded in the Bill of Rights is an environmental clause that guarantees everyone a right to an environment that is not harmful to their health or well-being (Witbooi 2006). Government is then given the responsibility to take reasonable legislative measures to protect the environment, prevent pollution and ecological degradation and promote conservation. Further, government laws and policies are expected to secure sustainable development, and the use of natural resources, at the same time as promoting justifiable economic and social development (Witbooi 2006). The challenge, however, is the development of laws and policies that are put in place at a sectoral level, which interpret constitutional provisions in different ways. In fisheries, for example, policies are influenced by the conflicting objectives of national frameworks that govern social development and equity, macro-economic policy and

principles of environmental sustainability (Van Sittert *et al.* 2006). This lack of coherence at a national level has led to the 'subordination' of the principles of social equity and environmental sustainability to the goals of economic efficiency. As van Sittert *et al.* (2006) state, the effect 'in terms of fisheries reform has been to sideline issues of poverty and food security in pursuit of economic growth, efficiency and stability' (p. 98). Thus, the marginalisation of small-scale fisheries needs to be understood in this current political context, in addition to the broader historical context of inequity, which van Sittert (2003) argues has been evident over the past century.

Prior to the new democratic fisheries law in 1998, small-scale fishers in South Africa were considered 'illegal' by the state or operated under the regulations governing recreational fishers (Hauck *et al.* 2005, Sowman 2006). Thus, subsistence fishing activities were either ignored (in areas where law enforcement capacity was low) or addressed by law enforcement efforts that resulted in fines or imprisonment. These fishers were considered 'non-compliant' in terms of the national and provincial laws of the apartheid regime. More recently, since 1998, small-scale fishers have been given the opportunity to formally (legally) obtain access to marine resources. This has been through the allocation of subsistence fishing rights and through 'limited commercial' rights, which are essentially a small-scale quota allocation[5].

In terms of compliance, from government's perspective, the redistribution of formal access rights to fisheries has meant that many more people, operating along a 3000km coastline, need to be managed and monitored. Furthermore, with political pressure to redistribute economically viable access rights, the need to minimise over-exploitation of stocks is particularly critical. The danger posed by 'illegal' fishing, therefore, has motivated the fisheries authority to significantly increase its investment in promoting fisheries compliance, largely through law enforcement (Hauck and Kroese 2006).

The problems, however, only seem to be exacerbated. Although there has been a significant increase in the number of people who are legally able to harvest marine resources in South Africa, many traditional fishers have still been excluded (Isaacs

[5] This will be discussed in more detail in Chapter Four.

2006a, Sowman 2006, van Sittert *et al.* 2006). It is argued that this is due to inequitable policy implementation and the powerful local elites hijacking the opportunities of *bona fide* fishers (Isaacs 2006a). In addition, the powerful economic interests of the state and large capital have marginalised small-scale fishers by prioritising their own interests over the socio-economic needs of traditional fishers (Croeser *et al.* 2006, Isaacs *et al.* 2007, van Sittert *et al.* 2006). Inevitably, this illegitimacy of the management system has led to 'protest fishing', where fishers who do not have a legal permit continue to fish because they believe it is their right to do so (Hauck 1999a, Hauck and Kroese 2006). Similarly, in referring to the politicisation of fisheries in the mid-1900s, van Sittert (2002) argues that the state used its power to create monopolies and to dispossess traditional fishers of their rights. As a result, with a lack of popular legitimacy, 'the state found itself assailed on all sides by acts of social banditry, with endemic 'poaching' and the concomitant rise of 'black markets' in the inshore fisheries…' (p. 46).

6. POWER AND EVOLUTION OF LAW

The influence of power, and the imbalances that exist, are necessary to understand in the context of fisheries compliance. It is not enough to simply 'address' those who are not complying with laws, but a more in-depth understanding is required that focuses on the evolution of those laws in the first place, and their impact on social and economic inequities. Thus, in the South African context, it is first necessary to explore the formulation of formal law in determining what is 'illegal'.

The promise of the new democratic government in 1994 was 'the upliftment of impoverished coastal communities through improved access to marine resources' (ANC 1994: 114). Thus, a key objective of the three year marine fisheries policy process was to develop a fair system of allocating access rights, particularly to those who had previously been denied such rights (DEAT 1997). However, implementation of the fisheries policy led to controversy and litigation as there was no detailed strategy for the re-allocation process and there was a lack of institutional capacity and skills to manage transformation (Britz *et al.* 2001, Wynberg 2001). Furthermore, the small-scale fisheries sector was neglected due to excessive attention given to the

development of a legally robust permit application and allocation procedure for the commercial sector (Sowman 2006). Thus, the process of determining legal access to small-scale fisheries in fact excluded many *bona fide* fishers (Isaacs 2006a, Sowman 2006). This led to the legal recognition of some fishers, but not all. Therefore, the legitimacy of the allocation of rights, the prioritisation of the large-scale sector and the creation of an 'illegal sector' that emanated from an exclusionary process, is put into question.

The definition of what constitutes an environmental crime, therefore, can be contested (White 1999, 2003). For example, some *legal* industrial activities may in fact be more detrimental to the environment than those deemed illegal by the state (Halsey 1997, Halsey and White 1998). In the fisheries context, for example, small-scale fishers argue that fishing methods and quantity of catch of highly industrialised fisheries (which are legal) far outweigh the negative impacts of the catches of those small-scale fishers who are considered illegal by the state (Hauck *et al.* 2002). Thus, as is the case with environmental management more generally, local stakeholders will find it difficult to have their interests recognised alongside the interests of other stakeholders who are more powerful and have contrasting goals (Adger *et al.* 2003).

The definition of 'crime' can also be assessed from another perspective, arguing that harm can be perpetuated by declaring certain activities to be criminal. As Scraton and Chadwick (1991) explain: 'criminalization, the application of the criminal label to an identifiable social category, is dependent on *how* certain acts are labelled and *who* has the power to label, and is directly related to the political economy of marginalization' (p. 289, italics in original). This is the case of criminalising indigenous people's rights of access to natural resources (Beirne and South 2007, South 2007). In South Africa, for example, harm is exacerbated by protest fishing, which not only threatens resource sustainability, but also leads to conflict (sometimes violent), social unrest in coastal communities and animosity between the fishers and the state (Hauck 1999a, Hauck and Kroese 2006). Thus, defining what is legal or not, who determines this, and more specifically in the fisheries context, who receives access to resources or not (and the resulting rules of exploitation - Acheson 2006), has significant implications for how compliance is understood and achieved.

The allocation of fisheries rights, therefore, is directly related to issues of social justice and power (Chuenpagdee *et al.* 2005, Jentoft 2000). However, in South Africa, government has 'adopted a resource-oriented as opposed to a people-centred approach to natural resource management. While the principle of sustainability must underpin any rights allocation and resource management approach, it must be tempered by socio-economic and cultural considerations, and may at times require trade offs in favour of social equity' (Sowman 2006: 68). At present, however, there still exists many small-scale fishers who have been excluded from formal (legal) access to resources, and a subsistence, or small-scale fisheries management policy, has yet to be finalised by government. In contrast, medium-term rights and long-term rights in the commercial fisheries have been implemented since 2001 and 2005 respectively. This seems to support Dietz *et al.*'s (2002) recognition of the trade-offs that occur in terms of policy, which is frequently dominated by the goal of economic efficiency. Capitalist interests, therefore, are often the power behind policy decisions and laws (Lynch and Stretsky 2003). As Adger *et al.* (2003) explain, 'the powerful in society maintain their privileged position by legitimising it through a system of rules, conventions and institutions' (p. 1099). Thus, the complexities of understanding how rules and laws are developed, and the power dynamics behind them, are critical to an understanding of compliance. Barton *et al.* (2007a) argue that an exclusive focus on law enforcement often leads to the realisation that crime control efforts are often targeted at the criminality of marginalised groups, requiring an analysis of the relationship between 'processes of marginalisation and criminalization' (p.7).

This directly relates to the need to understand the 'roots' of environmental harm, particularly in its social, economic, political and institutional contexts (Halsey 1997). There is broad acknowledgement that environmental protection and/or degradation are influenced by, among others, power, poverty, political structures, governance arrangements and economic growth and industrialisation (Beirne and South 2007, Elliott 2001, Halsey 1997, Lynch and Stretsky 2003, Najam 2004, White 2003).

7. A PRELIMINARY CONCEPTUAL FRAMEWORK

In understanding fisheries compliance, therefore, there is a need to adopt an integrated approach that recognises fisheries as a system, which needs to be governed in its entirety (Charles 2001). As discussed in Chapter Three, a preliminary conceptual framework was developed through an iterative research process, as a means of guiding data collection and analysis. Other research studies that have sought to understand small-scale fisheries compliance through empirical research have been drawn upon (Gezelius 2003, Kuperan *et al.* 1997), as has reference to Raakjær-Nielsen's (2003) analytical framework for understanding industrial fisheries compliance in Denmark. Thus, through exploratory fieldwork, coupled with previous research experience and a literature review, the diverse factors that seemed to be influencing fishers' compliance behaviour were outlined diagrammatically (see Figure 3.2). The development of this framework provided an important tool with which to understand the preliminary data, and to further guide and analyse additional information gathered during the research process. The framework, therefore, attempts to highlight the diverse and complex social, economic, biophysical and institutional systems that are operating and interacting with each other in fisheries in South Africa. Further, the role of power, and law, in underpinning the fisheries system is emphasised. Each of these factors will be discussed further below.

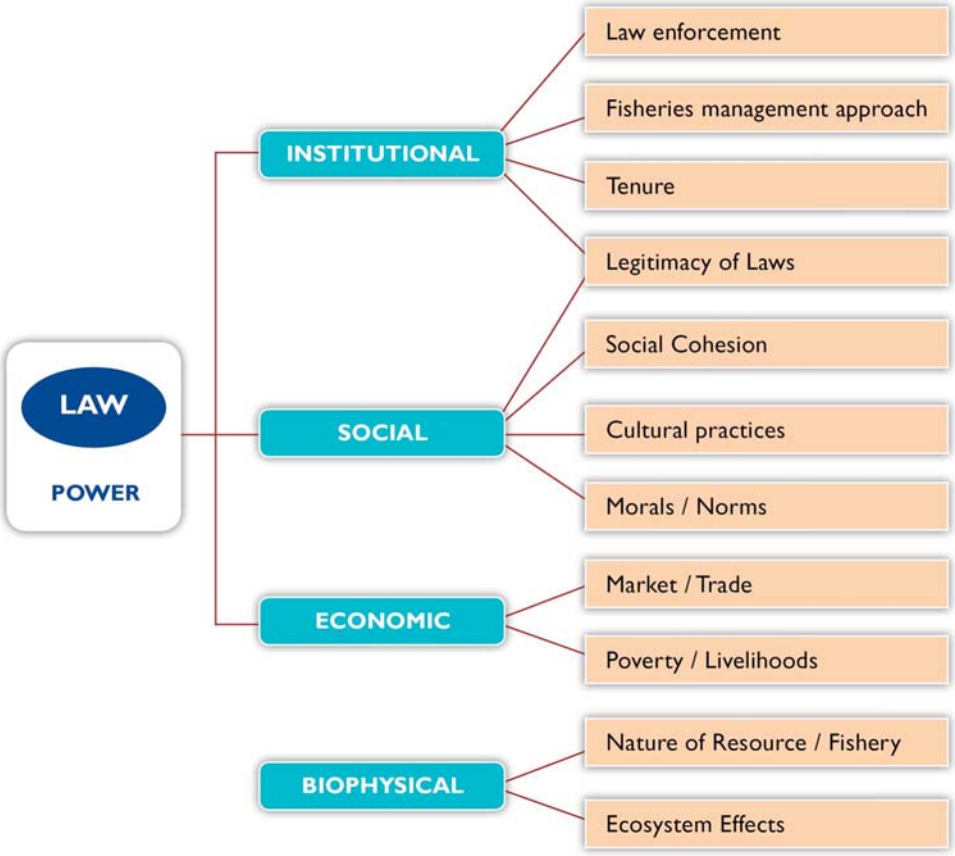


Figure 3.2: Preliminary conceptual framework for understanding small-scale fisheries compliance in South Africa

As illustrated in Figure 3.2, power and law are highlighted as the political factors that are influencing institutional, social and economic dynamics. The importance of power and law, in the context of South Africa, is directly related to the historical role of government, and other powerful elites, in terms of managing fisheries, developing laws and establishing socio-economic policies. Key to this is the recognition that South Africa has only recently emerged from an oppressive apartheid state and is currently grappling with conflicting policies and laws that directly impact on both fisheries governance and social justice (Isaacs *et al.* 2007, Sowman 2006, van Sittert *et al.* 2006). Nevertheless, it is recognised that 'crimes' and laws are socially constructed and are embedded in power differentials in which the criminalised are often those who are also socially, economically and politically oppressed (Lynch and Stretsky 2003, Scraton and Chadwick 1991). In the fisheries context, this relates to the allocation of rights, and rules to harvest resources, and whether customary

practices, food security and poverty relief are incorporated into fisheries laws and policies (Chuenpagdee *et al.* 2005, Hernes *et al.* 2005). The marginalisation, and exclusion, of small-scale fishers needs to be understood in this context.

The institutional factors relate to the formal and informal rules and norms that govern resource use. Fisheries management is often made up of nested institutions that determine the allocation of rights to harvest a resource, the rules related to harvesting and the organisational structures established to manage these rules (Acheson 2006, Ostrom 2000). Many of these issues are political (Hoel and Kvalvik 2006) and lead to questions of legitimacy (Jentoft 1989). Management arrangements that explore the role of different stakeholders in managing the resource are critical to this understanding. As Chuenpagdee *et al.* (2005) state: 'despite the important impact on their livelihoods, coastal communities are often excluded from decision-making processes and debates on their livelihood options, such as access to the resources they depend on' (p. 33). In her discussion of collective action and the evolution of rules and norms, Ostrom (2000) states that empirical field research indicates that 'when the users of a common-pool resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more sustainably than when rules are externally imposed on them' (p.148). Nevertheless, the need to monitor resource use is also recognised as a necessary element of governance in order to minimise 'free-riding' and to legitimise the system by reassuring those who are complying with rules that others are also conforming (Dietz *et al.* 2002, Ostrom 2000, Schlager 2002). It is argued, however, that costly monitoring and enforcement can be minimised if laws and rules are considered legitimate (FAO 2005a, Jentoft 2000). Critical to this legitimacy is the need to ensure that institutions have 'moral force', thereby reflecting the norms, values and rights of fishers themselves (Jentoft 2004b).

Related to this is the social context of the fishery, which is illustrated in the framework as the normative and social influences affecting fishers' behaviour. Social cohesion needs to be explored in relation to the development and support for rules and broader social norms (Acheson 2006, Acheson and Gardner 2004, Ostrom 2000, Gezelius 2003). A culture of compliance indicates that there is a *general* moral obligation to obey formal law (Zaelke *et al.* 2005a). However, formal law may be 'overruled by moral requirements which are perceived as more fundamental than the

obligation to obey the law whenever the contents of specific laws conflict with certain moral norms of civil society' (Gezelius 2002: 313). This is the case, for example, when *economic* needs are considered more legitimate than formal law, resulting in widespread acceptance of informal fishing as a means to support one's family. As a result, the legitimacy of law rests on it reflecting fishers' perceived 'rights' and values (Berkes *et al.* 2001, FAO 2005a, Gezelius 2002, Jentoft 2000, 2004b). In other words, in order for a fisheries system to be legitimate, it must be considered 'just' by the fishers, or they are likely to resist it (Hernes *et al.* 2005).

Economic aspects of the framework relate to poverty, livelihoods and the impact of the market on global and local trade. It is widely acknowledged that poverty is rife in small-scale fishing communities around the world (Béné 2003, Berkes *et al.* 2001), that fishers live in relatively fragile livelihood conditions with few opportunities for alternative employment (Kooiman *et al.* 2005, Manning 2001) and that they are vulnerable to food insecurity (Béné and Heck 2005, Kooiman *et al.* 2005, Sowman and Cardoso *in prep*). These conditions can lead to resource overexploitation, as few alternatives exist (Béné 2003, Chuenpagdee *et al.* 2005). Further, the role of globalisation and the international market for fish products has had unprecedented impacts on fisheries governance at a local level (Ahmed *et al.* 2006, Dietz *et al.* 2003, Kooiman *et al.* 2005). The impact that this has had on small-scale fisheries, for example on resource value and demand, is necessary to understand.

Finally, the biophysical aspects of fisheries resources and the ecosystem with which they depend, are also important in understanding fishers' behaviour. The accessibility of inshore resources, for example, and the seasonal and biological characteristics all impact on harvesting strategies (Berkes *et al.* 2001). The dynamics of the natural system are unpredictable (Charles 2001, Clark 2006a), and even the weather can significantly influence the level, and intensity, of harvesting. Further, certain ecosystem effects may impact on catch levels and changes to resource abundance, which in turn impact on the social and economic circumstances of fishers. The impacts of environmental variability, therefore, need to be understood in the context of management and how they impact on access to resources and other fisher decisions. Although these biophysical factors were not a main focus of this research, it has been important to acknowledge the dynamics of the natural system, and the

resource constraints, in order to understand the fishery system as a whole, and how the factors interrelate.

Although the systems presented in Figure 3.2 are currently illustrated as one-dimensional, and the links between them are not yet clear, it is a preliminary identification of the multiple factors that could influence fisher behaviour. It has been used as a tool to guide compliance research in this study and to highlight the diverse issues that need to be explored in order to understand the different systems that are operating. It was clear at the outset, however, that this framework would need to be adapted and changed with ongoing empirical research in order to emphasise the linkages between the factors and highlight that the systems themselves are dynamic (Kooiman *et al.* 2005). A revised framework, therefore, based on empirical research and further conceptual development, will be presented in Chapter Seven.

8. CONCLUSION

Research on fisheries compliance has only recently begun to explore the variety of relevant variables that influence fishers' behaviour (Gezelius 2002, Hønneland 2000, Kuperan and Sutinen 1998, Raakjær-Nielsen and Mathiesen 2003, Roncin *et al.* 2004). These investigations have not only identified the complex interactions taking place in fisheries but have begun to highlight a concern for traditional crime control strategies that are required to respond to, and address, resource over-exploitation and decline. But even these theories of normative action need to be taken a step further to analyse the evolution of law and the powerful interests behind it. Thus, an understanding of compliance needs to recognise the linkages that exist between the diverse factors that influence harm, and more specifically between issues of social and environmental justice, which generally need to be understood in their historical context. Empirical research in this study begins to explore these linkages, and the factors that influence fishers' decisions to comply, or not, with rules and laws.

CHAPTER FOUR

SMALL-SCALE FISHERIES IN SOUTH AFRICA: A REVIEW

1. INTRODUCTION

In South Africa, 'subsistence' fishers were formally recognised by law for the first time in 1998, following the promulgation of the first post-apartheid fisheries legislation, the Marine Living Resources Act (MLRA 1998). The definition of small-scale fisheries in the South African context has been debated (Harris *et al.* 2002b, Isaacs 2006a, Sowman 2006), with rights allocation processes recognising two sectors that include 'subsistence' fishers and 'small-scale commercial' fishers (Branch *et al.* 2002a). In the context of this thesis, however, small-scale fishers in South Africa include a continuum of fishers who harvest marine resources for food to those who harvest largely to sell. All of these fishers, however, have a tradition of marine resource use, operate with low technology gear, harvest close to where they live and are directly involved in harvesting activities. From this perspective, small-scale fishers in South Africa have similar characteristics to those described in other parts of the world (Bavinck 2005, Berkes *et al.* 2003). For the purpose of this thesis, the term 'small-scale fisheries' will be used, but 'subsistence' and 'small-scale commercial' will be differentiated when necessary to emphasise different management approaches that have been used up to now. It is important to note that South Africa is involved in developing a new 'small-scale fisheries' policy, which intends to merge the previously differentiated sectors, and which will also likely have important repercussions for future fisheries management (DEAT 2008d).

This chapter aims to highlight the fisheries management challenges that South Africa has faced in the wake of a new democracy in 1994. The national government responsible for the environment, the Department of Environmental Affairs and Tourism (DEAT), and more specifically the fisheries authority, the Directorate of Marine and Coastal Management (MCM), have had an unenviable task of juggling the

objectives explicitly outlined in the MLRA: resource sustainability, economic stability and social equity. Thus, the conflicting interests of the scientists, industry and fishers, have had to be addressed through policies that aimed to prevent resource over-exploitation at the same time as meeting the demands of an export-orientated industry and the expectations of a vast number of small-scale fishers demanding rights to marine resources. Research tells us that none of the stakeholders are satisfied. Most marine resources, particularly those accessible to small-scale fishers, are over-exploited (Branch and Clark 2006, Cockroft *et al.* 2002). Court litigation has been commonplace in the fishing industry as established companies challenge government's rights allocation procedures, and decisions (Witbooi 2006). From the small-scale fishers' perspective, many of whom are still excluded from formal fisheries, feel they are worse off now than they were before (Cardoso *et al.* 2005, Isaacs 2006a, Sowman 2006).

The most comprehensive study on small-scale fishers in South Africa was conducted by the Subsistence Fisheries Task Group (SFTG) in 1999 (SFTG 2000). Following the legal recognition of subsistence fishers in the MLRA, this task group was appointed by the Minister of DEAT to make recommendations on the management of subsistence fisheries. The results of this research, which have been drawn on for this chapter, have been documented in a series of papers that outlined the research process, the socio-economic and resource-related issues, definitions and management recommendations (Branch 2002).

This chapter provides an overview of the status of marine resources accessible to small-scale fishers in South Africa, the socio-economic and cultural characteristics of small-scale fishers, and the management approaches that have been adopted by government to manage this sector. Reference to the historical context of South Africa, and the fisheries transformation process that has been adopted since 1994, will be highlighted as particularly relevant in terms of the existence of an informal (i.e.: 'illegal') sector. This chapter will draw on a number of research projects that have specifically been undertaken in the past ten years, following the promulgation of the MLRA. The author has personally been involved in many of these projects and publications, which has provided additional, and critically important, insight into the processes and approaches of various stakeholder groups. Most notably is her

involvement in the SFTG (Branch *et al.* 2002a, Clark *et al.* 2002, Harris *et al.* 2002a,b, Hauck *et al.* 2002), in analysing small-scale fisheries co-management arrangements (Hauck and Sowman 2001, Hauck and Sowman 2003, Hauck and Sowman 2005), in assessing government's approach to small-scale fisheries compliance (Hauck 2007, Hauck 2008, Hauck and Kroese 2006, Hauck *et al.* 2005) and in assessing South Africa's fisheries transformation process (van Sittert and Hauck 2006). Finally, this chapter will provide an overarching context of South Africa's limitations in terms of marine resource availability, socio-economic challenges and management approaches that ultimately influence small-scale fisheries compliance. Thus, this chapter provides the necessary background for the two case studies that will be discussed in greater detail in the following chapters.

2. SMALL SCALE FISHERIES RESOURCES

In South Africa, there are significant geographical differences in terms of resource abundance and use along the coast. The west coast is characterised by the cold, nutrient-rich waters of the Benguela current, whereas the east coast is characterised by the warm, nutrient-deficient waters of the Agulhas current. As a result, in general terms the lucrative resources, and commercial fisheries, are concentrated on the west coast, whereas many of the lower value fisheries, used predominately for subsistence use, are more prevalent on the east and south coasts (Branch and Clark 2006). Although resource abundance varies, small-scale fisheries exist all along the coast, sometimes in existence with recreational fisheries and/or commercial fisheries.

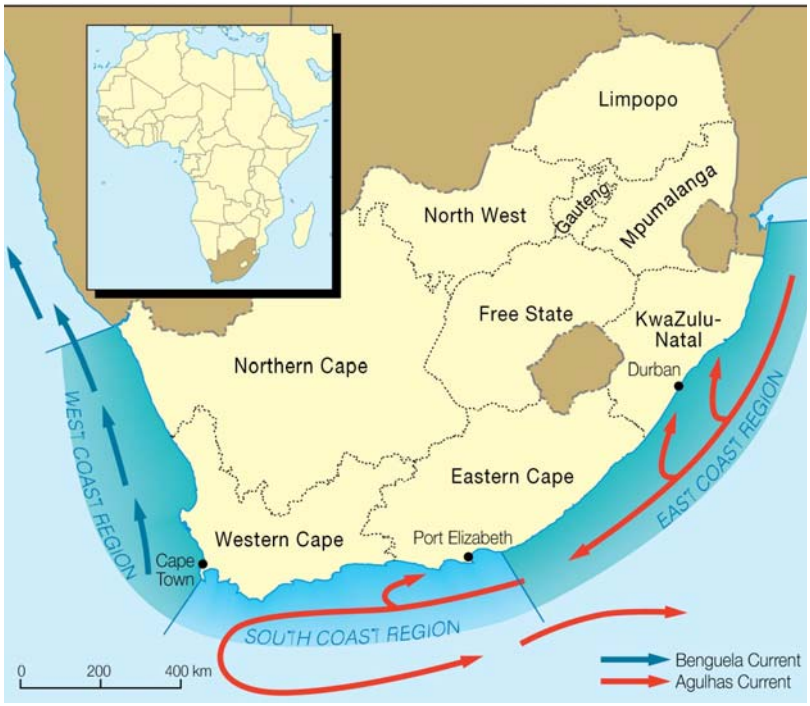


Figure 4.1: Coastal regions of South Africa

Overall, marine resources in South Africa are viewed fairly optimistically by the scientists, who state that although there are some exceptions, most of the major commercial fish stocks are being maintained at sustainable levels (Branch and Clark 2006). The exceptions, however, are those resources that are also harvested by small scale fishers, such as abalone, linefish and West Coast Rock Lobster (WCRL). The 'decimation' of the abalone resource (Branch and Clark 2006) led to a central government decision to officially close the abalone fishery indefinitely from February 2008 (DEAT 2007a). Linefish are also considered to be in 'critical condition', with current estimates being that the resource is at 5-10% of pristine levels (Branch and Clark 2006). Although WCRL had a slight recovery of the resource following substantial declines in catches in the 1990s (Branch and Clark 2006), concern for the resource has resurfaced, as witnessed by an annual 10% decrease in the commercial Total Allowable Catch (TAC) since 2005 (WCRL Association 2008). Furthermore, resources located along the east coast, such as mussels, limpets and the east coast rock lobster, are considered either fully utilised or severely over-utilised in many areas (Cockroft *et al.* 2002).

The most comprehensive review of marine resource use by small-scale fishers was the resource assessment conducted through the SFTG (Cockroft *et al.* 2002). A key objective of this review was to determine the resources that would be suitable for four fishery sectors: subsistence, small-scale commercial, commercial and recreational. Criteria were based on the tool or gear used, habitat, whether the resource was eaten or sold, and type of resource (Cockroft *et al.* 2002). Thus, this study was critical as it assessed the status of resources at the same time as determining which resources would be allocated to which sectors. Some controversy has subsequently emanated from the SFTG research, particularly in relation to the distinction between the different user groups and a reliance on the nature of the resource to determine rights allocation (Cardoso *et al.* 2005, Isaacs 2006a, Sowman 2006). For example, a key recommendation of the SFTG was to allocate low value resources to subsistence users and high value resources to small-scale commercial users (Branch *et al.* 2002a, Cockroft *et al.* 2002, Harris *et al.* 2002b). It was argued that more lucrative species would be better used for income (small-scale commercial) than for consumption (subsistence), assuming therefore that fishers could escape the 'poverty trap' (Branch *et al.* 2002a, Cockroft *et al.* 2002). This resource-oriented approach to allocating rights, however, has been highly criticised, particularly because it ignores the diverse harvesting strategies that fishers adopt to sustain their livelihoods (Cardoso *et al.* 2005, Sowman 2006).

Nevertheless, what is evident from recent assessments of small-scale fish resources in South Africa is that resource availability is not compatible with the political expectations that have been raised with new fisheries laws. The precautionary approach has been utilised, which has led scientists to warn about cautious rights allocation procedures (Cockroft *et al.* 2002). However, the SFTG did recognise that most resources had already been fully allocated to commercial or recreational fisheries, suggesting that 're-allocation among sectors will be the only way to accommodate subsistence fisheries and small-scale commercial fisheries' (Harris *et al.* 2002a: 420). Thus, resource assessment has inevitably been linked to management decision-making, which has meant a reshuffling of rights amidst a precautionary approach to resource management.

3. THE SOCIO-ECONOMIC SYSTEM

There is no doubt that the socio-economic system related to small-scale fisheries in South Africa has been significantly influenced by the discriminatory laws of the past (Hauck and Sowman 2003, Hersoug 2002, Hersoug and Holm 2000). With 45 years of apartheid and more than 300 years of colonial rule, it is inevitable that natural resource management in South Africa has been left with a legacy of inequality. The various policies and laws of the Colonial era and apartheid regimes effectively denied the majority of black South African citizens access to and ownership of vast stretches of South Africa's coastline and resources (Hauck and Sowman 2005). Thus, prior to 1998, small-scale fishers were largely considered 'informal' and were perceived by the authorities as 'poachers', largely being managed through law enforcement (Harris *et al.* 2002a, Harris *et al.* 2007, Hauck *et al.* 2002, Sowman 2006). Despite being illegal, small-scale fisheries continued to operate, sometimes under the guise of recreational fishing. However, quantities of catch, and the harvesting methods of small-scale fishers often did not conform to the conditions of the recreational permits, and these fishers could rarely afford permit fees anyway (Harris *et al.* 2002a). Thus, the MLRA, which aimed to address past inequities in the fishing industry, provided a significant opportunity for fishers to gain legal access to marine resources. A greater understanding of small-scale fishers was therefore required in order to adapt management strategies accordingly (Harris *et al.* 2002a). The SFTG research in 1999 proved instrumental as a first comprehensive 'take' on small-scale fisheries in South Africa. Two phases of fieldwork included a first scoping study that aimed to identify small-scale fishing communities and collect basic harvesting information (Clark *et al.* 2002). The second phase was a more detailed socio-economic assessment of 20 pilot case study communities, which provided important information on resource harvesters and livelihood strategies (Branch *et al.* 2002b).

3.1 Defining small-scale fishers

Although, as alluded to above, the exact legal definition of small-scale fisheries in South Africa has been debated, it is widely acknowledged that small-scale fisheries were largely considered illegal and informal in the past (Clark *et al.* 2002, Harris *et al.*

2002a, Sowman 2006). In recognising these fishers, as a means of legally allocating rights to harvest marine resources, the MLRA defined a 'subsistence' sector, which was later revised by the SFTG (Branch *et al.* 2002a). According to this definition, subsistence fishers harvest resources mainly for food consumption. However, the SFTG acknowledged that in their research another group of informal fishers was identified who sold their catch, and they recommended that this group be called the 'small-scale commercial' sector (Branch *et al.* 2002a). The SFTG highlighted that this group required separate attention and that the more lucrative species could be appropriately allocated to this group (Harris *et al.* 2002b). However, the problem with segregating these fishery sectors, it turns out, is that it significantly influenced the rights allocation process, with one procedure applicable to 'subsistence' users, and one applicable to 'small-scale commercial' users.

In coastal communities, however, fishers rely on a diversity of resources that influence their livelihood strategies – some resources they sell, and some they eat (Cardoso *et al.* 2005, Isaacs 2006a, Sowman *et al.* 2008). Even in the SFTG research, it was acknowledged that a range of fishing activities were adopted and a range of resources were harvested, largely due to the seasonal nature of catches and limited economic opportunities in coastal areas (Clark *et al.* 2002). Further, as will be outlined below, although there are regional differences in terms of species harvested, and levels of poverty, all small scale fishers depend on fishing activity as an important source of food, and/or income, to sustain their livelihoods (Branch *et al.* 2002b, Isaacs 2006a, Sowman 2006). Small scale fishers can be summarised as using low technology gear, labour intensive methods, low capital inputs, a range of organisational levels and includes activities whereby fishers harvest mainly for food or for sale to meet basic needs (Sowman 2006).

3.2 Resource Use

Archaeological evidence suggests that marine resources have been harvested along South Africa's coast for many thousands of years (Clark *et al.* 2002, Parkington *et al.* 1998, van Sittert 1993). This history has been emphasised by the personal accounts and memories of many fishers and their older relatives (Harris *et al.* 2002b, Hauck *et*

al. 2002, Masifundise 2003). In the first scoping phase of the SFTG research, 147 fishing communities were identified where subsistence or small-scale commercial fishing took place (Clark *et al.* 2002). Further, this study provided an initial estimate of about 29 000 individual, small scale fishers along South Africa's coast. Most small-scale fishers live close to the point of harvest and utilise marine resources for personal use, through consumption, bait or sale as a means of meeting basic needs (Branch *et al.* 2002b, Clark *et al.* 2002).

Harvesting strategies on the east coast are different to the west and south coasts, largely attributed to both the biogeographic differences as well as population dynamics (Branch and Clark 2006). On the east coast, for example, intertidal harvesting remains the dominant activity, while on the west coast, harvesting of nearshore resources, with the use of a boat, are more commonplace (Clark *et al.* 2002). While resource harvesting is still largely for food consumption on the east coast, resource use patterns on the south and west coasts have been significantly influenced by colonisation and the development of industrial fishing by big capital (Sowman 2006, van Sittert 2003). In fact, it is believed that 95% of the commercial fisheries are harvested on the Western Cape coast (Hersoug 2002). Small-scale fishers are not a homogenous group, but they have nevertheless maintained their fishing activities despite the discriminatory laws of the past (Harris *et al.* 2002a, van Sittert 1994).

3.3 Socio-economic Characteristics

Phase two of the SFTG socio-economic research highlighted the plight of small-scale fishers in South Africa. In 20 coastal communities, with 488 fisher households interviewed, it became clear that poverty was endemic in these communities and few economic opportunities were available to fishers (Branch *et al.* 2002b). Only half of the fisher households interviewed had one occupant with waged employment, the average monthly income was R455 (approximately US$44), which was lower on the east coast, and higher on the west coast) and there were high levels (53%) of food insecurity (whereby >60% of income was spent on food). Households along the east coast were identified with the highest poverty rates, while those on the west coast

(excluding the Northern Province) were the lowest (Branch *et al.* 2002b). Interestingly, 32% of fisher households relied on government grants (such as pension or disability) for income, which confirms other research in South Africa that has indicated the critical importance of such grants to household income (Glavovic *et al.* 2002).

The average size of each fisher household was 5.3 persons, with size levels being highest in rural areas, and on the east coast of the country. Levels of education were very low amongst fishers with almost two-thirds of those aged 20 or older had either no schooling or had some primary schooling only. In terms of employment, 40.3% of respondents were unemployed (compared to national average of 29% - Woolard 2002) and only 10% had regular employment. These figures differed between regions, with more unemployment along the east coast and higher levels of seasonal employment on the west coast (likely due to seasonal commercial fishing activity, Branch *et al.* 2002b).

The statistics outlined above paint a bleak picture of coastal communities and highlight a reliance on marine resources for food security and livelihoods. Other studies, following the SFTG research, have further emphasised the marginalisation of small-scale fishers. Some of these have explored case study sites (Hauck and Sowman 2003, Sowman *et al.* 2008), particular provinces (Cardoso *et al.* 2005, Harris *et al.* 2007, Napier *et al.* 2005) or general assessments on coastal poverty and livelihoods (Glavovic and Boonzaier 2007, Glavovic *et al.* 2002, Isaacs *et al.* 2007, Sowman *et al.* 2008, Sunde 2003). Poverty stricken coastal communities are considered highly vulnerable, with few economic opportunities to sustain their livelihoods. Furthermore, they are exposed to a number of other risks such as climate change and HIV/AIDS, the latter which is considered the single main cause of death in South Africa (Glavovic and Boonzaier 2007).

South Africa's historical legacy has contributed to coastal poverty through racial segregation, land dispossession and unequal distribution of natural resources (Glavovic and Boonzaier 2007, Harris *et al.* 2007, Hauck and Sowman 2005, Hersoug 2002). The 'homelands' policy, for example, which was an instrument of the apartheid government to force 'black' Africans to live in designated rural areas,

increased their reliance on natural resources with little or no economic alternatives. Protected areas in South Africa were frequently proclaimed by forcibly removing people from their land or denying them access to resources that they had traditionally harvested (Hauck and Sowman 2005, Sunde and Isaacs 2008). With regard to marine resources, black ethnic groups[6] were effectively excluded from gaining legal rights to harvest, process or market these resources (which will be discussed further below; Hersoug 2002, Payne and Cochrane 1995). As van Sittert (2003) has highlighted, on the west coast small-scale fishers were exploited by big industry as cheap labour. With free housing and food, fishers became asset and capital poor, minimising their ability to secure employment outside of the fishing season, and thus contributing to their vulnerable livelihoods.

Thus, historical experiences and current socio-economic characteristics emphasise the fragile livelihoods of small-scale fishers. A recent assessment of three coastal communities in South Africa indicated that fishing activities were an important, if not primary, source of income for fisher households (Sowman *et al.* 2008). Further, livelihoods are affected by fishers' exclusion from resources (both land and marine) and over-exploitation and degradation of resources, all of which are evident in coastal communities (Glavovic *et al.* 2002). A study by Cardoso *et al.* (2005) indicated that the socio-economic status of small-scale fishers on the west coast of South Africa has not changed since 2000, when the SFTG conducted its research. They highlight that poverty remains prevalent along the coast, food insecurity remains high, there are few alternative sources of income for fishers, and fishing is an important livelihood strategy. This, therefore, puts into question the management strategies that have been adopted by government to formalise small-scale fishers in South Africa, and to address the inequities of the past.

4. THE MANAGEMENT SYSTEM

Government recognised its inadequate knowledge of the small-scale sector (i.e.: 'subsistence fishers') by appointing the SFTG to gather the necessary research and make recommendations to guide the formalisation and appropriate management of

[6] Black ethnic groups, in the South African context, are those groups identified by apartheid policy as 'Indian', African' or 'Coloured'.

this newly defined sector. Although the SFTG's recommendations (SFTG 2000) were adopted by MCM, implementation has been slow and a broader paradigm shift at national level still needs to take place (Harris *et al.* 2007, Sowman 2006). Furthermore, small-scale fishers remain dissatisfied with access to, and management of, marine resources (Isaacs 2006a, Masifundise 2003, 2007). Five key management approaches will be highlighted below to outline the processes and repercussions that have emanated from government strategies to manage the small-scale sector.

4.1 Legal Reform

Following the democratic elections of 1994, South Africa embarked on a radical legal and policy reform process in all sectors of society (Glazewski 2000). This legal order was framed by South Africa's new Constitution in 1996, which introduced a human-rights based dispensation as outlined by the Bill of Rights (Witbooi 2006). The Constitution emphasises the link between environmental rights and human rights, promoting sustainable development, and the use of natural resources, at the same time as promoting justifiable economic and social development (Witbooi 2006). This framework, therefore, influenced the development of new fisheries legislation, a process which began in 1995.

The fisheries policy process, which has been reviewed elsewhere (Hersoug 2002, Martin and Raakjær-Nielsen 1997), attempted to consult widely as a means of incorporating the views and concerns of a diverse group of stakeholders. Although many problems arose, a key emphasis was on addressing the inequitable access to marine resources. It was widely acknowledged that history had left its legacy in the fishing sector with radical disparity between the white and black population in terms of access to marine resources, a skewed distribution of resources between the small-scale and large-scale fishing operations and a fisheries management authority that was dominated by white administrators that had little legitimacy amongst the largely black coastal population (Hauck and Sowman 2005, Hersoug 2002). In 1994, 0.75% of TAC-regulated species were allocated to blacks, 7% of commercial registered vessels were owned by blacks and 6% of the 4000 fishing permits were issued to blacks (Hersoug 2002: 20). Furthermore, there was an oligopoly in the fishing industry,

whereby a small number of large companies had majority access to resources (Croeser *et al.* 2006).

The promise of the new government, therefore, was 'the upliftment of impoverished coastal communities through improved access to marine resources' (ANC 1994: 104). This was reiterated by a special task team, appointed during the fisheries policy process to investigate access rights, which recognised that 'with political changes there are expectations that access rights should be broadened, particularly to redistribute access to those people previously denied rights because of political considerations' (ARTC 1996: 5). A key objective, therefore, of the MLRA was to restructure the fishing industry in order to address historical imbalances. Thus, in addition to ensuring the long-term sustainable use of marine living resources, the Act also seeks to promote equitable access to marine resources, transform the fishing industry and promote socio-economic benefits for coastal communities (Hauck and Sowman 2005).

However, the implementation of the MLRA has proven problematic due to the conflicting objectives of sustainability, stability and equity, which were not adequately defined or prioritised in the Act (Witbooi 2006, van Sittert *et al.* 2006). Further, these objectives are influenced by broader national policies, which exacerbate the conflicts at sectoral level. For example, the Reconstruction and Development Programme (RDP), which governs social development and equity, was seen as the African National Congress' manifesto for socio-economic reform in South Africa. The RDP emphasised the importance of poverty alleviation, the redress of past injustices and the importance of access to and sustainable use of natural resources as a means of achieving socio-economic goals (van Sittert *et al.* 2006). The objectives of the macro-economic policy of the Growth, Employment and Redistribution Strategy (GEAR), however, focussed on stimulating economic growth and foreign investment by reducing state control and promoting privatisation (van Sittert *et al.* 2006). Isaacs *et al.* (2007) argue that GEAR's neo-liberal policy abandoned many of the underlying principles of the RDP, promoting a market-driven approach rather than more direct interventions in terms of poverty alleviation. Furthermore, van Sittert *et al.* (2006) state that fisheries reform has effectively 'sidelined issues of poverty and food-security in pursuit of economic growth, efficiency and stability' (p. 98).

These policy conflicts, therefore, have significantly impacted on small-scale fishers, particularly in relation to their ability to access marine resources (which will be discussed below). Although the MLRA aimed to acknowledge the rights of small-scale fishers by formalising the 'subsistence' sector, the interests of the commercial sector remained a priority of government (Isaacs *et al.* 2007. Sowman 2006). Thus, although 'transformation' was one of the key drivers to policy development in South African fisheries (Kleinschmidt *et al.* 2003), the mechanism with which to 'transform' the fishing industry was never agreed upon, nor was it defined in the MLRA (Witbooi 2006). As a result, despite new legislation to address the inequitable access to marine resources, there remains significant unrest in the fishing industry, which is evident through ongoing court litigation by big industry and ongoing informal (or 'illegal') fishing by the small-scale sector (Hersoug 2002, Isaacs 2006a, Witbooi 2006).

4.2 Redistribution of Access Rights

As highlighted above, a key strategy to 'transform' the fishing industry was the redistribution of rights to harvest marine resources. Witbooi (2006) explained that this entailed including new entrants into the industry, allocating quotas to small-scale fishers (particularly historically disadvantaged individuals), and promoting internal transformation of existing industry through Black Economic Empowerment. However, despite a radical reallocation of rights from 0.75% black ownership in 1994 to 62% black ownership in 2004 (Branch and Clark 2006), small-scale fishers remain marginalised. Van sittert *et al.* (2006) argue that although the fishing industry in South Africa has 'blackened', genuine redistribution of rights to traditional small-scale fishers remains problematic, which has led to little change on the ground (Cardoso *et al.* 2005). As one Non-Governmental Organisation (NGO), which works closely with small-scale fishers explains:

> 'Whilst the 2001 allocation process thus did give extensive access to new entrants, it also did not substantially alter power that the big companies had, ostensibly because it did not want to disrupt a potentially lucrative export trade and incur the possibility of job loss. In addition, the big companies and trade unions had lobbied hard to retain the status quo' (Masifundise 2003: 9).

Croeser *et al.* (2006) argue that the interests of big capital remain aligned to the state, which in effect does not leave room for small capital interests. They argue that the economic policies of GEAR emphasised competition on the global market place, which 'neutralised the threats of nationalisation or radical redistribution on large industry' (p. 21). Thus, internal transformation, through increased black ownership within companies, has been favoured by big capital as a means to minimise disruption in its export orientated focus. These companies argue that resource sustainability and international recognition are key to stabilising the fishing industry, as opposed to radical redistribution of quotas (Croeser *et al.* 2006). As a result, export orientation has in fact maximised profits for both the state and big capital at the expense of broader populist demands for transformation. Interestingly, despite the fact that big capital has been unwilling to give up much of their historical rights to accommodate new entrants, a 'fragile peace' has emerged in the fishing industry as a result of currency devaluation (Croeser *et al.* 2006). With a depreciated Rand, big companies were still able to generate profit with lower quotas, thus allowing some re-allocation of fishing rights without significant repercussions to industry (Raakjær-Nielsen and Hara 2006). Thus, Isaacs *et al.* (2005) state that 'the introduction of neo-liberal macro-economic policy enhanced the position of established companies by providing them with the argument that their ability to change the way they do business was limited because stability is vital for them to remain internationally competitive…' (p. 5). It is argued, therefore, that this process has simply led to a new elite, rather than addressed issues of social justice and poverty alleviation (Raakjær-Nielsen and Hara 2006).

For small-scale fishers, therefore, the only real mechanism to gain formal access was through subsistence permits and small-scale quotas. This approach was considered critical to redressing the equity imbalances in the fishing industry, but it was emphasised that this must be done within the limits of the resources (Cockroft *et al.* 2002). The success of addressing historical imbalances in the fisheries sector was therefore reliant on the resources that were made available to the small-scale sector. Sowman (2006) argues that the commercial and recreational fisheries were prioritised, and although there may be valid economic arguments in terms of the multiplier effects of recreational fisheries, this must be balanced with the Constitutional rights of poverty alleviation and food security. The perceptions of small-scale fishers, which

emerged from SFTG research, strongly indicated that their greatest concern was ongoing exclusion from formally accessing resources. Access rights were considered inequitable, highlighting the fact that commercial and recreational fishers were harvesting resources in their areas, but they were denied the right to do so (Hauck *et al.* 2002). Fishers felt strongly that 'they should be given priority access to resources in their area and should not be marginalised by recreational and commercial fishers from outside their community' (Hauck *et al.* 2002: 467).

In terms of subsistence fishery rights, Sowman's (2006) review indicates that except for an interim relief measure to allocate subsistence fishing rights in the abalone and WCRL sectors (1998-2000), no other subsistence fishing permits have been allocated. Instead, subsistence fishers have been allocated annual 'exemptions' in the Eastern Cape and KwaZulu-Natal (KZN) provinces, which is done so under Section 81(1) of the MRLA. This clause exempts persons from any provision in the Act on the basis of 'sound reasons'. Although some level of access has been achieved in these areas, the combination of annual permits with extremely delayed allocations (of up to four months or longer), has led to high levels of frustration and insecurity on the side of subsistence fishers (Small-scale fisher workshop 10-14 March 2008). Furthermore, fishers are being fined for 'old permits' as compliance officers are not informed that the permits have been 'rolled over' until new ones are issued.

In addition, on the west and south coasts, no subsistence fishers have been recognised as a result of the resource recommendations of the SFTG, despite high levels of food insecurity that have been found in these regions (Cardoso *et al.* 2005, Sowman 2006). Rather, an emphasis has been placed on the small-scale commercial sector, through access to abalone, WCRL and linefish quotas. Although the SFTG emphasised the potential for micro-scale enterprises linked to these high-valued resources as a means of encouraging subsistence fishers to move out of the 'poverty trap' (Branch *et al.* 2002a), there have been significant problems with these allocations. Isaacs *et al.* (2005) argue that in fact many *bona fide* fishers still do not have formal access to resources, those who did receive rights do not always have an economically viable allocation and many new entrants do not have the financial or technical capacity to establish viable businesses. Thus, they state that 'the government has largely missed its opportunity to ensure [that] the restructuring of the industry was managed in such a

way as to achieve broader societal goals such as the alleviation of poverty and upliftment of fishing communities' (Isaacs *et al.* 2005: 1). Thus, whilst a significant number of historically disadvantaged individuals have gained access to the fishing industry, the reality is that many of these are local elites, who have the money, knowledge and/or political connections to benefit (Isaacs 2006a, Sowman 2006). Many of the traditional fishers, on the other hand, remain overlooked and marginalised (Isaacs 2006a, Isaacs *et al.* 2007, Masifundise 2005, 2007, van Sittert *et al.* 2006).

Thus, the transformation of fisheries in South Africa, as a means of creating greater equity in the industry, has been fraught with conflict. There is no doubt that both internal transformation, which involved transformation of existing fishing companies in terms of black ownership, and external transformation, which included the broadening of access to new rights holders, have significantly increased the participation of historically disadvantaged individuals in the fishing industry (van Sittert *et al.* 2006). However, the extent to which this has achieved social justice on the ground is questionable (Isaacs 2006b, Raakjær-Nielsen and Hara 2006, Sowman 2006, van Sittert *et al.* 2006).

Research continues to indicate that small-scale fishers are excluded from accessing marine resources legally, with many claiming that they are forced to harvest illegally (Cardoso *et al.* 2005, Hauck 2007, Isaacs 2006a, Masifundise 2003, Sowman 2006). This sense of injustice was highlighted at the Fisher Peoples Human Rights Hearings on 13 and 14 August 2003, facilitated by the fisher NGO Masifundise, as a means to allow fisher communities to voice their concerns (Masifundise 2003). This information culminated in the initiation of a court case in 2004 by marginalised traditional fishers. Supported by Masifundise, and a legal resource centre, fishers who believed they had a legitimate right to access marine resources challenged the Minister of DEAT. This case, Kenneth George and Others vs. the Minister of Environmental Affairs and Tourism (10512/04), which focussed on the fishers' right to secure a livelihood, as outlined in the Constitution and the Equality Act (2004), was resolved in an out of court settlement in May 2007. In this settlement, the Minister agreed to embark on a new and participatory process for developing a small-scale fisheries policy for South Africa. Further, he agreed on an 'Interim Relief Permit' for

traditional fishers, particularly on the south and west coasts, who have been excluded from previous rights allocation procedures. This interim relief permit stipulated specific regulations for harvesting WCRL and linefish.

Since this agreement, two phases of the interim relief permits have been allocated to approximately 1200 small-scale fishers on the west and south coasts. In addition, a small-scale fisheries policy process is underway, with the first national summit convened in November 2007. At this summit, DEAT acknowledged openly that small-scale fishers had been marginalised and that they were committed to addressing the needs of this sector, specifically highlighting the government's willingness to explore a number of new management approaches (DEAT 2007c). A small-scale fisheries policy task team, representing various stakeholder groups, and a technical committee, have been appointed and have been working together to draft a new policy. Although the policy process, and the interim relief permits, have had their problems and challenges, most stakeholders acknowledge that these recent developments have been positive.

One of the greatest challenges, however, remains the need to address historical imbalances, and fisher expectations, within the limits of resource sustainability (Cockroft *et al.* 2002). In addition to the objectives of resource management, it will be important to recognise the human rights of small-scale fishers, including their social and economic sustainability. If this approach is not adopted, it is likely that fishers will remain disenchanted and they will 'vigorously defend perceived traditional rights', even if it is illegal to do so (Cardoso *et al.* 2005: 35).

4.3 Resource-oriented Approach

Marine science research in South Africa, based within MCM as well as at universities, has been considered world class, despite the isolation during the apartheid boycott years (Hersoug 2002). Branch and Clark (2006) argue that this is reflected in the relatively stable condition of the larger commercial fish species. With relatively few stakeholders, MCM worked closely with big industry to maintain fish stocks in the interests of sustaining both commercial and recreational interests. However, with new

fisheries legislation, and the need to acknowledge small-scale fisheries, it has been necessary to move from a resource-oriented approach to management to more people-centred approaches, which incorporate the concepts of sustainable livelihoods and poverty alleviation (Isaacs 2006b). However, such a shift has not effectively taken place, which has led to the prioritisation of resource sustainability with little acknowledgement, nor institutional capacity, to achieve broader social objectives.

This is particularly reflected in the SFTG distinction between subsistence and small-scale commercial sectors, which is considered a resource-centred classification that does not adequately reflect the socio-economic circumstances of fishers, their poverty levels or their socio-cultural fishing practices (Isaacs 2006a,b, Sowman 2006). Rather, the classification is based on government's characterisation of the resource: 'This classification system creates problems because fishers from poor coastal communities seldom fall neatly into one or other category because they employ a range of livelihood strategies to survive' (Cardoso *et al.* 2005: 33). Thus, although there is a rationale for using high value resources as a means of escaping a cycle of poverty, resources should be allocated in such a way as to ensure that the socio-economic and cultural characteristics of fishers are also considered.

The current rights allocation system has failed to acknowledge the diverse range of livelihood strategies that are adopted by small-scale fishers (Isaacs *et al.* 2005, Sowman 2006). Fishers may engage in other income-generating activities during certain seasons, during times of resource shortages, or when new opportunities arise. This is undermined through some of the rights allocation criteria that limit other forms of employment, or access to other fishing sectors (DEAT 2003, 2005). Furthermore, the 'forced commercialisation' of informal fishing has led to a highly competitive environment with inadequate financial support and business training from government (Cardoso *et al.* 2005, Isaacs *et al.* 2005). By treating fisheries management as a scientific issue, rather than a socio-economic one (Raakjær-Nielsen and Hara 2006), government ultimately allocated non-viable quotas in many of the limited commercial fisheries.

Thus, the allocation of resources, largely based on ensuring resource sustainability, has meant that other important interventions that sustain fishers' livelihoods are not

adopted, or recognised as a function of the fisheries authority. The importance of addressing poverty and food security in coastal communities, for example, is not considered by MCM as a core responsibility (Isaacs 2006b). The objectives of the MLRA, however, will not be achieved through a resource-oriented approach that ignores the broader socio-economic and cultural characteristics of small-scale fishers (Sowman 2006).

4.4 Law Enforcement

Law enforcement has been a key strategy of MCM to monitor and regulate fisheries. The capacity and effectiveness of this law enforcement approach, however, has varied over the years, and has varied between the coastal provinces. For example, the ability of the state to effectively enforce fisheries regulations was severely affected by the transfer of fishery compliance functions between national and provincial governments. In 1987, these functions were devolved to the provinces and the "staff and budget severely trimmed" (van Sittert 2003). The provinces were therefore responsible for law enforcement at sea and within marine protected areas. In 1994, the fisheries compliance function was reclaimed by MCM. This created a myriad of problems. Firstly, the number of fishery compliance staff declined by more than two-thirds in a decade, from 420 in 1986 to 126 in 1995. Secondly, the operational budget was not transferred from provincial to national government, requiring DEAT to find a compliance budget of R15 million in 1995 by rationalising other departmental programmes. The compliance budget fluctuated between R11 and 15 million per annum until the resources of the Marine Living Resources Fund (as stipulated in the MLRA, section 10) could be accessed (see Fig. 9, Croeser *et al.* 2006). The loss of staff and budget in the mid-1990s severely depleted fisheries compliance capacity and effectiveness, resulting in almost all of the inspectorate's time being spent on quota monitoring and harbour management and very little on coastal patrolling. This coincided with a time of political transition, 'protest fishing' and the development of a new fisheries policy.

As a result, the presence of law enforcement along the coast was inconsistent. Small-scale fishers continued to harvest marine resources even though it was considered

'illegal' by the state. Although some would harvest through the use of recreational permits, daily bag limits were often exceeded as the stipulated limits were not meeting basic needs (Hauck *et al.* 2002). When interaction with law enforcement did occur, it often resulted in conflict, and sometimes violence, with fines and imprisonment a common outcome. Fishers explained that they often felt harassed and threatened by fisheries authorities, and were angry with the methods of policing that were adopted to prevent them from harvesting resources (Hauck *et al.* 2002). Interestingly, however, in the province of KZN in the mid-1990s, where the provincial conservation authority was making an active attempt to engage with subsistence fishers, these fishers expressed an improvement in their relationship with the authorities and observed a less heavy-handed approach to management (Hauck *et al.* 2002, Napier *et al.* 2005).

Thus, in order to encourage more regional and local level compliance initiatives, some delegation of compliance authority took place in the late 1990s and early 2000s. It is argued that by allowing decision making at a local level, rather than in distant national offices, a more integrated approach to compliance, and management, can be implemented more effectively (Sowman *et al.* 2003). As a result, compliance responsibilities were transferred to other government departments, such as Ezemvelo KwaZulu-Natal Wildlife (EKZN Wildlife: the conservation authority in KZN) and South African National Parks. In addition, for the first time, such functions were delegated to a local municipality in 2003. This Overberg municipality, located on the south coast, embarked on a pilot project to visibly patrol and coordinate fisheries law enforcement activities in its area. This was an area where there were high levels of informal abalone fishing and this was an attempt by MCM to enhance capacity at the same time as engaging with local communities. With a change in senior compliance personnel in 2005, however, this programme in the Overberg municipality was terminated.

Although the delegation of compliance authority is important in principle, fisheries management decision-making remains centralised with MCM. Delegated authorities are therefore required to enforce the rules that are developed at national level. As a result, they are not directly involved in decision-making and do not have the authority to allocate fishing rights, which is the most controversial issue that they are faced

with. Many compliance personnel express significant frustration with this approach, arguing that their law enforcement efforts are short-term, but they are divorced from long-term strategic planning about compliance and management in general (A46, A49, A50, L6, L7, L9, EEU 2005).

Nevertheless, following the promulgation of the MRLA in 1998, the state has heightened its interest in ensuring fisheries compliance. With pressure to broaden access to marine resources, in the interests of social equity, the importance of ensuring compliance to sustain stocks is increasingly considered critical by MCM (Hauck and Kroese 2006). This is reflected in the increase in the compliance budget from R15 million in 1995 to R60 million in 2004. As a result, there has been a focus on enhancing law enforcement capacity through the development of a specialised investigation unit, joint investigations with other law enforcement agencies, and the procurement of four offshore patrol vessels. Although effort has been placed on this policing approach, it has done little to impact the small-scale fisheries sector.

Despite investigations and special operations targeted at organised commercial 'poachers', the lack of coastal visibility, coupled with a lack of integration with local level issues, has led to little law enforcement impact on the ground (Hauck and Hector 2000, Steinberg 2005). Instead, fishers perceive law enforcement as the state's strategy to prevent them from accessing marine resources, which in essence threatens their livelihoods (Cardoso *et al.* 2005, Hauck *et al.* 2002). Without legitimacy, the fishers continue to contravene rules and laws that they consider 'unjust'. With no moral obligation to comply, draconian law enforcement would be required to police the coast (Jentoft 2004b). Politically undesirable, and expensive, alternative strategies have been highlighted by fishers that include more participatory, and legitimate, approaches to management.

4.5 Institutional Arrangements

Although South Africa has largely engaged in a centralised fisheries management system, some important attempts have been made by government to initiate more participatory approaches to governance. In the past, partnerships were formed between established industry and government to manage commercial fisheries. These forums, which have played some role in management since 1934, were established to exchange information and facilitate discussion between the commercial sector and the fisheries authority (Hutton 2003, Hutton and Pitcher 1998). In some circumstances, these forums played a significant role in management, which was largely attributed to the fact that there were few roleplayers with which to engage (Hutton and Pitcher 1998; Raakjær-Nielsen and Hara 2006). However, following the redistribution of rights in the commercial sector, many of these participatory forums collapsed. Whereas in the past there were a small number of industry stakeholders, with high levels of investment and security in the fisheries, the fisheries transformation process introduced many new rightsholders, which also led to uncertainty in terms of access, and conflict and mistrust towards government (Hutton 2003; Raakjær-Nielsen and Hara 2006).

In terms of the small-scale fishers, those who have small commercial quotas are peripherally involved in the new government-industry structures that have been established through the MLRA. Every fishing sector is to establish a Scientific Working Group and a Resource Management Working Group. The former is to oversee the biological research for the fishery and to make recommendations on the TAC. MCM scientists reside on this committee with representatives of rightsholders invited as 'observers', in order to establish a consultative forum. Although recommendations from this working group are made, the Minister retains the right to make the final decision on all matters (Raakjær-Nielsen and Hara 2006). Resource Management Working Groups were envisioned to provide recommendations to the Minister on rights allocation and facilitation of transformation in the industry. The reality, however, is that many of these forums are not working effectively, or at all, and small-scale fishers continue to feel sidelined by the interests, and domination, of established industry (Raakjær-Nielsen and Hara 2006).

The need, however, for such participatory management structures is widely acknowledged in South Africa's legal and policy framework. The Constitution, and other laws governing resource management, emphasise equitable and sustainable access to natural resources, and the involvement of resource users in management decision-making (Hauck and Sowman 2003; Hauck and Sowman 2005). Known as co-management, a number of partnership arrangements in South Africa have emerged between government authorities and resource users to share responsibilities and manage fisheries resources (Harris *et al.* 2007, Hauck and Sowman 2003). The principle of co-management was highly recommended by the SFTG, which outlined a multi-tiered institutional structure that spanned national, provincial and local levels. There was a particular emphasis on the devolution of management responsibilities to provincial level, and where capacity was lacking, a programme was promoted to build the necessary personnel and skills (Harris *et al.* 2002b).

The most established small-scale fisheries co-management arrangements are those in the province of KZN. A catalytic case study was initiated in this province in 1995 that aimed to address the illegal and over-harvesting of the mussel resource, the lack of access by traditional harvesters, and the endemic conflict between harvesters and the provincial conservation authority (Harris *et al.* 2003). This initiative, which heralded many positive outcomes, led to a rollout of the co-management approach to the rest of the province (Harris *et al.* 2007). The province of KZN is unique in this regard as it has a long established, and well capacitated, provincial conservation authority. MCM, therefore, devolved authority to EKZN Wildlife in 2000 to manage subsistence fisheries in this province. This has resulted in the implementation of co-management arrangements in 19 communities for 43 individual fishery groups, which implement the process of allocating and managing small-scale fishing rights (Harris *et al.* 2007).

In other coastal communities, however, where partnerships have been attempted with MCM, co-management initiatives have faced many challenges, largely attributed to a lack of government commitment (Hauck and Sowman 2003). Although the SFTG had recommended a Subsistence Fisheries Management Unit within MCM, which would be assisted by regional fieldworkers in the provinces, the implementation of

such a Unit was slow to take place. It currently exists, but is understaffed, has high turnover, and has limited support (if any) at provincial level. Van Sittert *et al* (2006) argue that this is a reflection of MCM's broader institutional problems, which include high levels of staff attrition, significant understaffing with one-third of posts not filled, and professional staff that is largely dominated by natural scientists, who do not have the skills, or necessarily the interest, to engage with fishers on the ground.

Historically, other than through law enforcement, MCM had very little interaction with small-scale fishers, which led to mistrust and animosity towards the authorities. The SFTG research clearly highlighted the frustration of fishers who remained excluded from accessing resources and who were not consulted regarding fisheries decision-making (Hauck *et al.* 2002). This widespread mistrust has eroded the legitimacy of the state and has made 'poaching all the more reasonable and acceptable at the grassroots level' (Hersoug and Holm 2000:225). Despite the legal framework to ensure fisher involvement in management, MCM's understanding and commitment to this concept is weak (Sowman *et al.* 2003). It is argued that there is a need to embrace the principles of co-management within MCM by devolving authority to the provinces (such as KZN), building capacity at local level to genuinely engage with fishers, actively supporting pilot studies along the coast and harmonising the objectives and activities of the directorates involved in fisheries and coastal management (Sowman *et al.* 2003). As van Sittert *et al.* (2006) strongly argue: 'the combination of poverty, dependence, large numbers of users and easy access to the resources means that management of subsistence [small-scale] fishers is doomed without co-operation from the fishers' (p. 108).

Finally, co-management arrangements in South Africa have largely focussed on resource conservation rather than integrating concepts of economic development and poverty alleviation (Hara and Raakjær-Nielsen 2003, Hauck and Sowman 2003). Although it is recognised that the sustainability of the resource is fundamental to securing fisher livelihoods (Isaacs 2006b, Sowman 2006), diversification of these livelihoods, and broader poverty alleviation, is not adequately explored through co-management processes. This was also highlighted in a recent review of the KZN co-management arrangements, which stated that many fishers still had high expectations that were not being met. Thus, it was recommended that a core focus of the fisheries

management strategy should be the development of alternative livelihoods for coastal communities (Clark 2006b). This was reiterated by van Sittert *et al.* (2006), who argued that it was necessary to streamline institutional structures within MCM, and through co-management, to develop supplementary livelihoods with fishers to decrease poverty, increase food security and minimise pressure on limited marine resources (see also Sowman *et al.* 2008).

5. FACTORS INFLUENCING COMPLIANCE

Evident from the overview in this chapter, small-scale fishers are influenced by a variety of factors that impact their behaviour in different ways. Key, however, are the historical and current laws and policies that have marginalised fishers from formally (i.e. legally) accessing marine resources. As a result, many fishers have continued to undertake customary fishing practices, or have turned to the sea as an important livelihood strategy, and are then labelled as 'poachers' and addressed through law enforcement. Even with a new fisheries law (MLRA), which aims to address the past imbalances in the fishing industry, the commercial sector has been prioritised in terms of policy development and rights allocation. Further, in order to ensure economic stability in the commercial fisheries, and not to jeopardise the international export market, 'transformation' has largely been internal, increasing black ownership and management in the companies. However, this has had little impact on social justice and poverty relief in coastal communities. The recognition of small-scale fishers' traditional use and reliance on marine resources, therefore, has not been adequately acknowledged, respected, nor protected by law.

Further, the institutional arrangements governing small-scale fisheries need to be challenged, particularly due to the resource-orientated and centralised approach of fisheries management. At present, the needs and values of fishers are often not incorporated into management decision-making. Although some formal institutional structures are in place to engage with commercial fisheries, the implementation of co-management arrangements in coastal communities has been slow and has been plagued with difficulties. The delegation of authority to EKZN Wildlife, however, has been a positive development in that the conservation authority has actively

initiated co-operative agreements with small-scale fishers. The challenges that remain are the fragmentation of decision-making, the allocation of resources and the need to broaden fisheries governance to include ensuring the socio-economic sustainability of fishers' livelihoods. A reliance on law enforcement to 'protect' the resources has largely exacerbated conflict and ignored the underlying drivers of fisher behaviour.

The social dynamics highlighted in this chapter largely relate to the cultural links to resource use and the perceived illegitimacy of the management system. From the fishers' perspective, their 'rights' are not being protected by the state, which has engendered mistrust and fuelled disrespect for the fisheries authority. Thus, there is little obligation to obey current laws, and a culture of non-compliance is accepted. From an economic perspective, many small-scale fishers have few alternative opportunities to meet basic needs. Even with seasonal employment, fisheries are an important livelihood strategy to supplement income and/or food. Resource harvesting, therefore, is an important and often primary livelihood strategy for small-scale fishers – whether they have a formal permit to fish or not.

The biophysical aspects of the fishery system are also important to understand and have been briefly highlighted in this chapter. The accessibility of resources, their seasonal characteristics, and in many cases their sedentary nature, influence harvesting strategies. Livelihoods are affected by the availability of resources, as well as by the competition and conflict for resources with other sectors (such as recreational and commercial). Thus, changes in the natural system also impact on fisher behaviour.

The factors summarised above highlight the complexity in understanding the determinants of compliance behaviour. They also provide the context and background to a more detailed discussion of the two case studies discussed in Chapters Five and Six.

6. CONCLUSION

The development of post-apartheid fisheries legislation was guided by an acknowledgement of South Africa's unjust past, and a recognition of the inequities in the fisheries sector. The promulgation of the MLRA in 1998, therefore, set out to achieve transformation in the fishing industry and formally recognised small-scale fishers (i.e. subsistence) for the first time in the country's history. The recognition of this sector, however, through the allocation of rights, proved more complex than MCM had anticipated. With three conflicting objectives in the MRLA – sustainability, stability and equity – priorities had favoured the first two over the last (van Sittert *et al.* 2006). The challenge of achieving the balance between these objectives was highlighted by Branch and Clark (2006): 'equity could be addressed by throwing fisheries open to all, but this would be a recipe for disaster in terms of sustainability and economic efficiency. Conversely, failure to develop equitable access for people previously denied these rights will be equally disastrous, provoking unbridled poaching' (p. 3).

It is recognised that 'illegal fishing' was historically a vital source of food security and income for many small-scale fishers (Harris *et al.* 2002a, Hauck *et al.* 2002, Sowman 2006). However, strict limits on resource use, as well as the recent attempts to reallocate fishing rights, left many fishers with no formal rights, despite the fact that they continued to fish anyway. They claim that government laws turned 'us into criminals' or 'poachers' (Branch *et al.* 2007, Hauck *et al.* 2002). This sense of injustice was exacerbated by raised hopes and expectations that emerged from the fisheries policy process and the MLRA, but which never materialised for many of the *bona fide* fishers (Isaacs 2006a). Disillusionment and mistrust towards MCM led to retaliatory action, and in some instances, violence (Faasen and Watts 2007, Hauck 2007, Hersoug 2002).

Although attempts were made by MCM to achieve equity, through its various mechanisms to broaden access to previously disadvantaged individuals, it was ill-prepared for the onslaught of rights applications amidst limited institutional capacity (Isaacs 2006a, Kleinschmidt *et al.* 2003). While some argue that fisheries

transformation has been 'remarkable' (Branch and Clark 2006), others have highlighted that many traditional fishers remain excluded from formally accessing marine resources (Cardoso *et al.* 2005, Harris *et al.* 2007, Hauck 2008, Johnston 2007, Masifundise 2007). The state's task has not been an easy one and it must be recognised that attempts at legal reform, the redistribution of fishing rights and the initiation of consultative bodies were a means with which to tackle the transformation of South Africa's fisheries. Broader consideration, however, to issues of poverty, food security and customary rights were beyond the capability of government institutions that had traditionally focussed on resource objectives and law enforcement. The challenges were therefore immense, and there was insufficient transformation within the institution itself, and perhaps a lack of political will, to address these broader issues.

Thus, as South Africa embarks on a new small-scale fisheries policy, it will be important to recognise the socio-economic circumstances of traditional fishers, and to move away from a resource-oriented approach to management. As Sowman (2006) emphasises, 'while the principle of sustainability must underpin any rights allocation and resource management approach, it must be tempered by socio-economic and cultural considerations, and may at times require trade offs in favour of social equity (Sowman 2006: 68). Many small-scale fishers in South Africa have a long history of resource use and are living in conditions of abject poverty, with few economic alternatives. As a result, a reliance on law enforcement will do little to address these underlying factors that influence fisher behaviour. By drawing on a historical and political context, it is important to understand the social, economic, institutional and biophysical factors that drive fishers to fish, whether it is legal or not, otherwise it is unlikely that South Africa's new fisheries policy will be considered legitimate on the ground.

CHAPTER FIVE

THE EVOLUTION OF THE ABALONE FISHERY: FROM PROTESTS TO SYNDICATES

1. INTRODUCTION

The abalone fishery in South Africa has been identified as one of the most difficult fisheries to manage (Branch and Clark 2006). This is a result of a combination of factors, but largely refers to the significant rise in the organised illegal trade of abalone since the mid-1990s and the growing impact of ecological factors that have resulted in the increased predation of juvenile abalone (Tarr 2000). The combined impact of these phenomena have led to the 'abalone crisis', which saw an 88% decrease in the Total Allowable Catch (TAC) of the fishery from 615t in the 1995/6 season to 75t in the 2007/08 season, and complete closure of the fishery in 2008. The high profile of this fishery began in 1994 with what was known as the 'abalone war' – violent confrontations between the police, coastal communities, informal fishers and commercial abalone divers (Hauck 1999a).

The heightened concern over more than a decade about both the sustainability of the abalone fishery and endemic conflict between the stakeholders has spurred a suite of diverse responses, largely aimed at crippling the illegal trade (Hauck 2000, Hauck and Kroese 2006). In order to do so, the primary strategy of government has been to enhance law enforcement, effectively increasing its overall compliance budget by 300% (from 1995-2004) in order to create a greater presence along the coast and to target organised syndicates (Hauck and Kroese 2006). However, despite this focus on law enforcement, the battle to save the abalone fishery has effectively been lost. The Minister of the Department of Environmental Affairs and Tourism (DEAT) announced the closure of the abalone fishery effective from February 2008 (DEAT 2007a). This decision, together with an estimated informal trade of 900 tons (ASWG 2007), which is almost 12 times that of the 2007/08 formal commercial fishery, indicates that the future of the fishery looks bleak.

In order to effectively understand small-scale fisheries compliance in South Africa a thorough understanding of the abalone fishery is key. A focus on enhancing law enforcement budgets, at the same time as closing the commercial fishery, has highlighted the need to question current management decision-making, assess the impact of compliance approaches and explore the possible drivers of the informal trade. Thus, this chapter documents how the abalone fishery has evolved over the past decade and explores the key factors that have influenced the informal trade. It will begin by outlining the natural system, including the resource characteristics, ecosystem changes and the decline in the resource that led to the closure of the commercial fishery. The socio-economic characteristics of the fishery will also be described, including the dynamics of the formal and informal fisheries, how they interact and how they have changed over time. The key management strategies that have been implemented to address the illegal trade and sustain the fishery will then be outlined and assessed. Finally, the chapter will end with a brief discussion of the underlying factors that have influenced fishers' compliance behaviour, and the key issues that need to be considered in the wake of the official closure of the commercial fishery.

2. THE NATURAL SYSTEM

Scientists have been warning of the potential commercial collapse of the abalone resource for a number of years (Tarr 2000). High levels of informal fishing, combined with the ecological consequences of an influx of rock lobster to abalone-rich areas, have led to a dramatic decrease in the TAC for the abalone fishery between 1996 and 2007 (see Fig. 5.1).

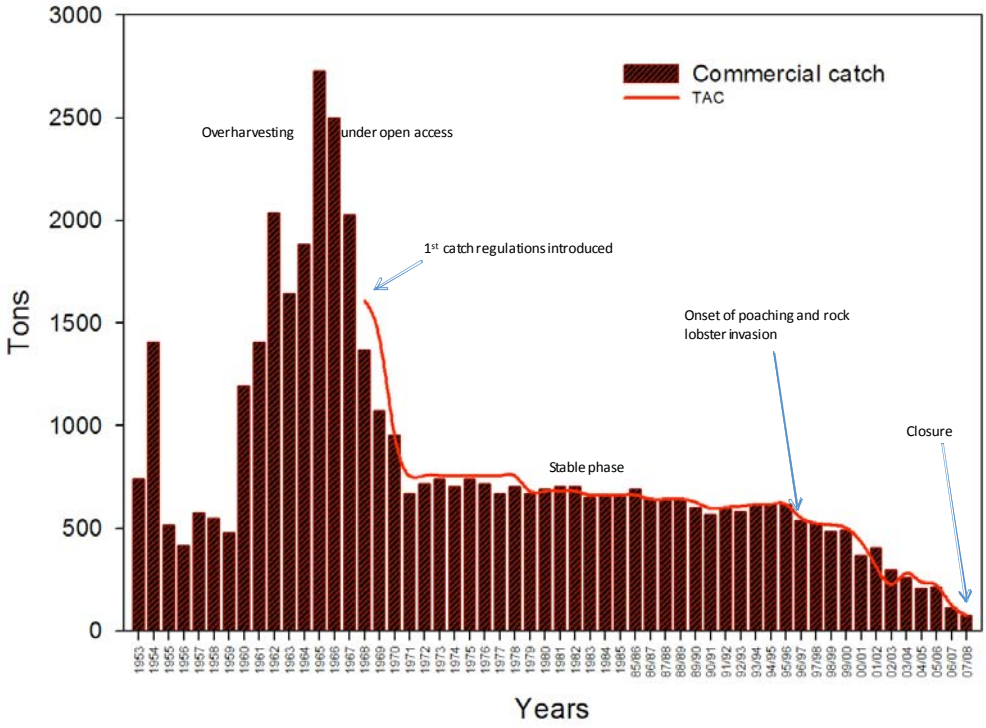


Figure 5.1: Annual commercial landings and TAC of abalone in South Africa (Raemaekers *et al. in prep.*)

It is believed that more than 60% of informally-caught abalone are below minimum legal size, indicating that they are being harvested before they are able to reproduce (ASWG 2007). Abalone are slow growing and only reach maturity after seven years, while attaining minimum legal size (for the formal fishery) after 8-9 years. Abalone are largely distributed inshore with the highest densities in waters of less than five metres (Tarr 2000). This makes the resource highly accessible to shore-based divers. Furthermore, abalone are broadcast spawners, requiring close-proximity for reproduction. Thus, with a decline in abalone density, there is concern that the resource will be too sparsely populated to reproduce effectively, particularly in the zones with high lobster migration (see below, ASWG 2007).

In the early 1990s an ecological problem emerged due to the large-scale movement of rock lobster into the same areas where abalone have been most prevalent. This has resulted in the high predation of sea urchins, which provide shelter for juvenile abalone (Tarr *et al.* 1996). Recruitment of juvenile abalone has been severely affected, particularly in historically rich abalone areas. Thus, scientists indicate that even under optimistic assumptions, the abalone resource in these areas will take at least a decade

to recover as a result of the changes to the ecosystem (with very low levels of recruitment), coupled with the impact of high levels of informal fishing in the early 1990s (ASWG 2007).

Fishery Independent Abalone Surveys (FIAS) have been conducted by MCM since 1995 to assess the inshore status of the abalone resource. All abalone above 100mm shell length are surveyed in 20 transects per fishing zone. Results over the past decade indicate significant declines in all major zones (see Figures 5.2 and 5.3). As a result of resource over-exploitation, scientists have called for revised management strategies, with some supporting the closure of the commercial fishery (ASWG 2007, DEAT 2007d, Maharaj 2006).

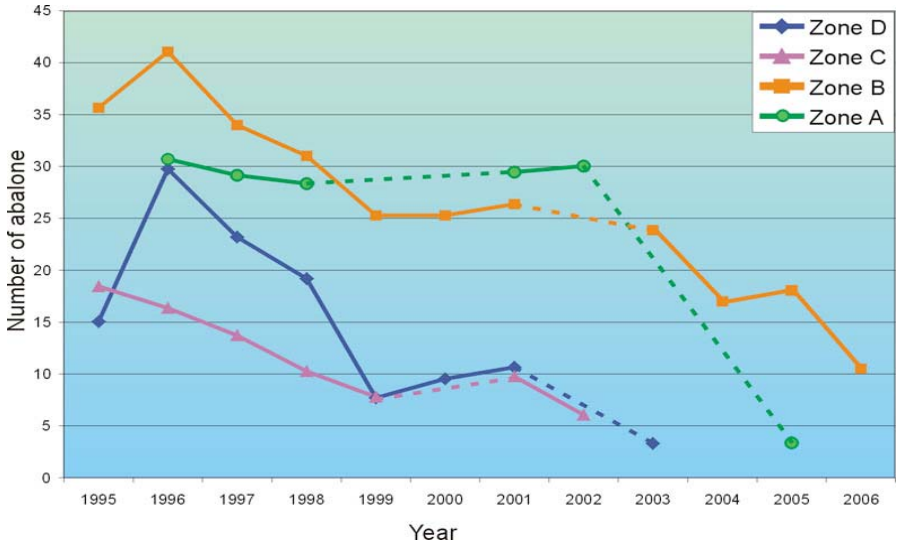


Figure 5.2: Results of FIAS (number of abalone per 30m x 2m transects) (Maharaj 2006)

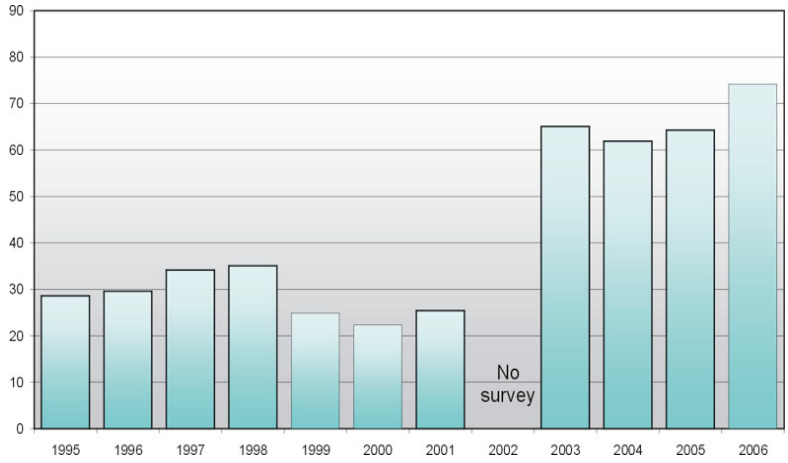


Figure 5.3: Percentage of FIAS survey quadrats showing zero abalone (Maharaj 2006)

3. SOCIO-ECONOMIC SYSTEM

This section will provide an overview of the socio-economic characteristics of the abalone fishery, including a description of the formal and informal fisheries. This overview is drawn from previous research conducted since 1995 (Hauck 1997, 1999a,b), and is enhanced through more recent interviews, focus groups meetings and workshops conducted since 2005 (see Appendix 2).

3.1 The South African Abalone Fishery

Up until the fishery closed, the South African abalone fishery consisted of two main fisheries. One was the formal fishery, known as the 'legal fishery', which was recognised by the state and regulated through state structures, laws and regulations. The second, which is the informal fishery, and which continues to operate, is considered illegal by the state but is recognised and regulated through non-state structures and rules. Both of these fisheries operated simultaneously, with significant overlap between the two sectors. As can be seen in Figure 5.4, the informal fishery was considered larger than the formal fishery and there were estimates that up to 80% of the formal fishers were also involved in the informal fishery (A1, A5, A9, A15, A16, A19, A31, A34, A45, A46, A54)[7].

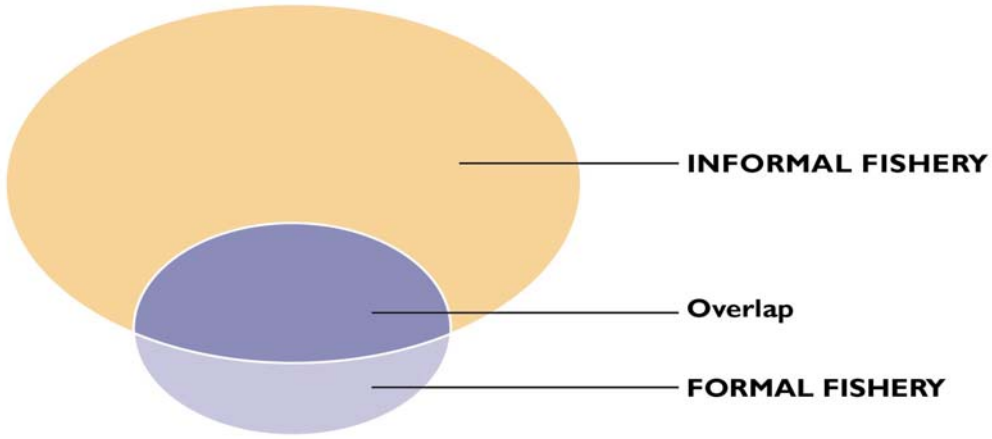


Figure 5.4: Composition of the South African abalone fishery, highlighting the overlap between the formal and informal fisheries

[7] This figure of 80% is of course anecdotal – but it was very interesting to note that many respondents (both law enforcement and fishers) specifically stated this percentage, indicating that many formal fishers were involved in the informal trade.

The formal abalone fishery began as an open access fishery, was first regulated in terms of catch limits in 1968, and evolved to include commercial, recreational, subsistence and limited commercial sectors. A traditional fishery has existed for decades, but an informal fishery (i.e. considered 'illegal' by the state) emerged in the late 1960s when increased government regulations were put in place to limit harvesting (A1, A35, A38). The informal fishery became significantly more organised and lucrative in the early-1990s. It has evolved to include traditional fishers, many of whom were unsuccessful in receiving a formal right to fish, as well as opportunists, who turned to this fishery for high economic gain. Figure 5.5 outlines the different sectors that are, and have been, operating in the abalone fishery. Each of these sectors will be discussed further below.

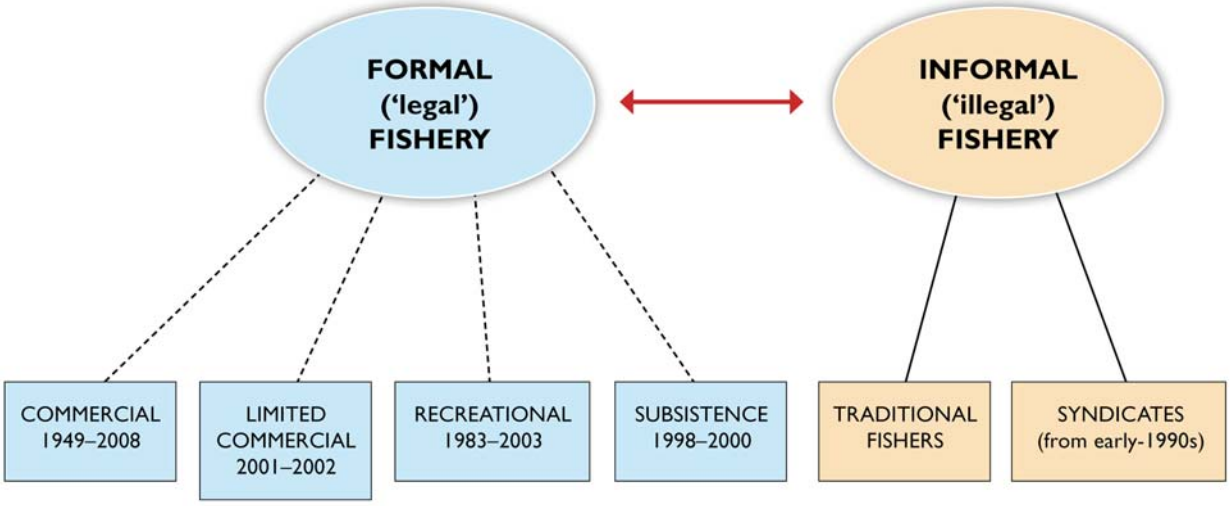


Figure 5.5: Sectors of the formal and informal abalone fisheries. Dotted lines highlight those sectors that are no longer allocated rights.

3.2 The Market

South Africa exports 100% of its abalone catch, with most of this destined for Hong Kong, which is the key import centre for the world trade in abalone (Bürgener 2006). Following economic growth in China since the late 1990s, demand for seafood has been increasing (To *et al.* 2006). Abalone, specifically dried abalone, is an expensive delicacy in China, which is used for special celebrations and banquets (To *et al.* 2006). Consumer demand for abalone in China dates as far back as the Zhou Dynasty

(1122 to 256 BC), when abalone was recorded as being a regular part of the emperor's diet (To *et al.* 2006). In more contemporary society, the most valued abalone product is dried, and has particular significance in terms of wealth and social status.

In a study by To *et al.* (2006), on the trade in dried abalone in Hong Kong, it was revealed that South Africa was the leading exporter of dried abalone from 1998-2002. Interestingly, in studying the Hong Kong import data, it also indicated that there were statistics of the importation of dried abalone from other African countries (including three landlocked countries). However, abalone (*Haliotis midae*) only occurs off the shores of South Africa and is not formally exported to other African countries. Thus, Bürgener (2006) concludes that 'it is almost certain that all of this abalone was illegally harvested in South Africa and laundered through neighbouring countries' (p. 2). In their study, To *et al* (2006) estimate the price of dried abalone from South Africa (and other African countries) to range from US$342-$1239/kg, which is the second most valuable 'brand' after Japan.

The strong market for abalone has also had significant implications for government. Sales of confiscated abalone have led to major injections into the Marine Living Resources Fund (MLRF), which is used for MCM's operating budget. Confiscations between 2002 and 2004, for example, had contributed R90 million (approximately US$14 million) to the MLRF. In 2004, it was believed that R120 million (approximately US$19 million) was earned for the MLRF from the sale of confiscated abalone (DEAT 2004b), which was about one-third of its overall expenditure in 2005 (Hara *et al.* 2005). This profit, from the informal fishery to government, has led to strong allegations that it is in MCM's interest to maintain the informal trade. Interestingly, through the sale of large consignments of confiscated abalone, MCM becomes the greatest competitor to the formal industry. In recognising these allegations, one MCM report reads: 'It is unfortunate that reference is increasingly being made that the ineffectiveness of [law enforcement operations] to prevent the removal of abalone is directly subsidising the Department's operations.' (DEAT 2004b). Further, with the commercial fishery closed, DEAT will be the only marketing agent left who is exporting wild abalone (which is confiscated from the informal market). Thus, through the ban, government is creating a monopoly for the sale of abalone, which subsequently contributes to its operating costs.

Economic incentives linked to the strong abalone market have not been adequately explored at both a national and international level. Some stakeholders believe that consumer dynamics related to 'buyer monopolies' in the Far East should also be investigated, which influence both the formal and informal trade (F9, 35). At present there is no indication that the demand for South Africa's wild abalone will diminish, indicating that the influence of the market on abalone management needs to be taken seriously.

3.3 The Formal Abalone Fishery

The abalone fishery in South Africa is reliant on a single commercially exploited species, *Haliotis midae*. The commercial fishery extends along the south-west coast from Cape Columbine to Quoin Point (see Figure 5.6), which was divided into seven fishing zones in 1986, each designated its own Total Allowable Catch (TAC) based on scientific stock assessments (Sauer *et al.* 2003, Tarr 1992).

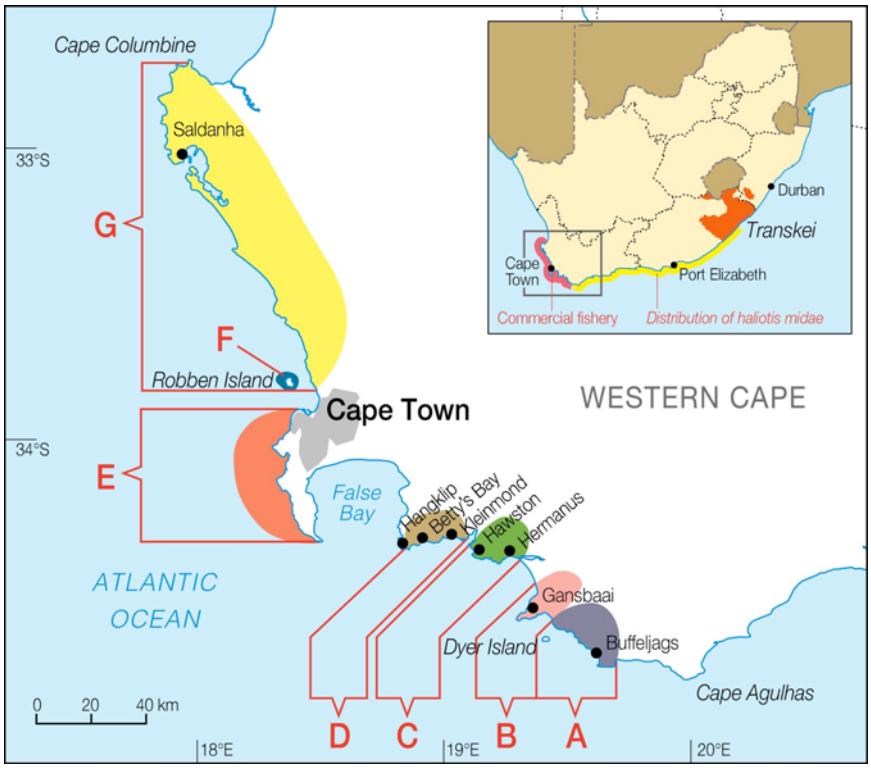


Figure 5.6: The commercial *Haliotis midae* fishing zones A-G on the southwestern Cape coast (adapted from Tarr 2000). The insert also highlights the area of the commercial fishery as well as the broader distribution of the species.

The commercial fishery began in 1949 in the community of Gansbaai (Zone B) with an open access fishery. Elderly residents of the area recall how they used to wade up to their ankles and pluck abalone from the rocks (C3, Hauck 1997). Licenses were required from 1954, but there were no limits on harvesting, which was largely influenced by demand. The commercial fishery was supplying a growing export market, particularly to Japan and South East Asia (Diemont Commission 1986). The peak of the industry was in 1965, when 2800t of abalone was harvested, with 14 processing plants and 112 divers operating in the fishery (Sauer *et al.* 2003). Due to a concern over the declining resource, the first catch regulations were put in place in 1968, with quota limits applied to the fishery from 1970 (refer to Figure 5.1). This decision by the state to limit harvesting resulted in a production quota allocated to six factories, based on past performance in the industry (Sauer *et al.* 2003). Many small-scale fishers lost their permits during this time, while others continued to work for the factories, but for a small fee per kilogram of abalone delivered.

Many abalone divers were aggrieved with their situation, earning only 50 cents per kilogram whole mass (abalone in the shell), while the quota holders were receiving significant profits (Diemont Commission 1986). However, it is argued that the circumstances of the abalone divers changed in the early 1980s when they formed a company and were given their own quota, as well as 'entrenched diving rights' (Diemont Commission 1986). Thus, up until 1998, when major transformation took place in the fishery following the promulgation of the Marine Living Resources Act (MLRA 1998), there were two key components of the commercial fishery. The first was the abalone divers (about 50), who had the right to dive and transport a fixed percentage of the annual quota to a processing company. The second was the 'quota holders' (five) who had the receiving, processing and marketing rights to a fixed percentage of the TAC (Tarr 2000).

Historically, the highest density of abalone, and hence the most intensively fished areas, had been zones A-D. These were considered the four major zones of the fishery, which had traditionally yielded over 90% of the TAC (Tarr 2000). Zones E and G supported small TACs and were closed in the early 1990s due to rapidly declining catch rates but were reopened in 1997 as experimental TACs, following the

requests of rightsholders (Tarr 2000). Dyer Island (in Zone A) was closed in 2003 as a protected area, and Robben Island (Zone F) is limited to a restricted fishing period as it is partially protected.

It has been argued that up to the early 1990s, the management measures in place appeared to be successful with divers reporting improved catches and new divers buying into the industry due to the strong possibility of increased TACs in the future (Tarr 2000). However, in the mid-1990s some changes took place, largely due to political pressure to extend access to the fishery to previously disadvantaged groups. A 10t community quota (1.6% of the TAC) was allocated to a group of fishers in Hawston (Zone C) and a further 10% of the TAC, ranging from 2t – 10t was allocated to ten new quota holders. The problem, however, was that the TAC had not increased with these allocations, resulting in resistance from the original 'large' quota holders who believed they had long term rights (Sauer *et al.* 2003). This conflict continued in the 1996/7 season as the TAC decreased while an additional six quotas were allocated, resulting in a further reduction for existing quota holders. The allocation process, following the MLRA, continued to be controversial and will be discussed further under management approaches.

It is important to note that although the highest density of abalone, and therefore the commercially harvested population, occurs in the southwestern Cape, the species also occurs in a 'discontinuous distribution pattern' east of Cape Agulhas, and extends as far as the former Transkei region (Tarr 2000, see Figure 5.6). An experimental quota of 3t was allocated in 1992 to community based subsistence harvesters in the Eastern Cape, and two other communities in this province were allocated experimental rights in 2001 and 2003 respectively (Britz *et al.* 2007, Tarr 2000). At present, however, no abalone rights are allocated in the Eastern Cape province. Although a 30t experimental quota was explored for the eastern Cape coast in the late 1990s, and applications were invited, this was abolished due to an increase in informal fishing and concerns that law enforcement was inadequate (Tarr 2000). This chapter focuses on the abalone fishery in the southwestern Cape, where the commercial fishery is centred. However, it is acknowledged that the abalone fishery, in its entirety, needs to be understood for future management possibilities and findings from the studies conducted on the fishery in the Eastern Cape (Britz *et al.* 2007, Godfrey *et al.* 2004,

Raemaekers *et al.* 2007, Raemaekers and Britz *in prep*) need to be dovetailed with the research outlined below.

3.3.1 Harvesting and Production

The formal abalone fishery usually involves a crew of 4-6 persons, comprising a diver who is assisted by a skipper and usually two assistants. The crew operate from 4-6m fibre-glass skiboats, with the diver using a 'hookah' system, which is an onboard surface-supply compressor system (Sauer *et al.* 2003). Divers usually only operate during calm sea conditions, which results in fishing only occurring on average 3-5 days per month during the fishing season (Sauer *et al.* 2003).

In the final 2007/08 season, there were 302 rights holders in the abalone fishery, which comprised of 262 individual divers and 40 legal entities (companies). The Abalone Processing Factories (APFs) were also allocated quotas in the past, but this was phased out in 2006 in order to encourage diversification by the factories and, ideally, to then reallocate this quota to other rightsholders.

In terms of production, prior to 1991, the abalone industry primarily exported canned and frozen products, with live abalone being exported to the Far East for the first time in 1991. The abalone fishery diversified further by processing and exporting dried abalone, which is considered greater value in the consumer market. Abalone fetches the highest unit price of any South African fishery and the overall value of the fishery was approximately R60 million (approximately US$8.9 million) in 2006 (based on a 223t TAC for a canned product – Maharaj 2006).

3.3.2 Recreational Fishery

The recreational fishery also began as an open access fishery, with regulations on daily bag limit and size of shell. In 1983, recreational fishers were required to purchase permits and additional management measures were put in place, such as closed seasons.

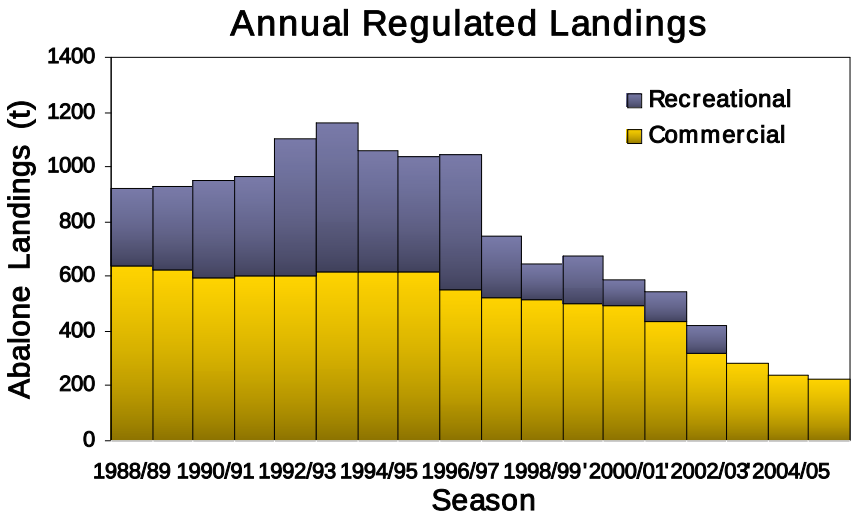


Figure 5.7: Annual recreational landings compared to commercial landings of the abalone resource (Maharaj 2006)

Steady increases in catches (based on government telephone surveys) reached a peak in 1993-1994, when it was estimated that 750t of abalone were harvested by recreational fishers (Sauer *et al.* 2003). This catch, which was 122% of the commercial TAC at the time, led to additional management measures as a means of decreasing further expansion of the fishery. It is suspected that this increase in recreational catch was linked to the informal fishery, with abalone being caught and sold for the black market. As a result, the Minister decreased the recreational fishing season and limited harvesting to weekends only as a means of reducing effort (Tarr 2000). In 2003, however, the recreational fishery was closed. The Abalone Policy of 2003 stated that the recreational fishery would be suspended 'until such time as the commercial abalone fishery is no longer under threat of closure' (DEAT 2003: 6). During the 2001-2002 season, the recreational harvest was 100t, which was one-third of the commercial TAC. Thus, MCM argued that it could not justify a recreational fishery whilst the commercial fishery, which sustained important jobs, was under threat (DEAT 2003).

3.3.3 Subsistence Fishery

In 1998, small-scale fishers were legally recognised for the first time in South Africa through the 'subsistence fisher' definition in the MLRA. This was an attempt by

government to recognise the traditional rights of subsistence fishers to formally harvest marine resources (Sowman 2006). Informal abalone fishers, for example, argued that they had a historical right to harvest a resource that they lived adjacent to (Hauck 1997). As a result, the Minister – for the first time - allocated just over 10% of the overall abalone TAC to a subsistence fishery in 1998. Thus, for the 1998-1999 fishing season, 236 subsistence permits were allocated in the Western Cape (Sauer *et al.* 2003) to harvest 85t of abalone (DEAT 2004a). Subsistence permits were then decreased for the 1999/2000[8] and 2000/2001 seasons and were eventually replaced by the allocation of limited commercial rights in 2001. There were a number of allegations from the authorities that the subsistence fishery was a conduit for the illegal fishery, in which the subsistence permits and tags were being used for illegally caught abalone (Sauer *et al.* 2003).

3.3.4 Limited Commercial Fishery

A limited commercial fishery was established in 2001, which was MCM's attempt at allocating small quotas to previously disadvantaged fishers. In acknowledging the management problems encountered by the subsistence permits, and adopting the recommendations of the Subsistence Fisheries Task Group (SFTG 2000), small-scale commercial rightsholders were identified for the abalone fishery. In 2002, of the 271 rights in the abalone fishery, 228 of these were 'limited commercial' (84%), with 202 quotas of 430kg and 26 quotas of 200kg (DEAT 2004a). Ninety-five percent of the limited commercial allocations were allocated to individuals. The original five large quota holders had 49.5% of the total commercial allocation in 2002, as opposed to 100% in 1992. Thus, limited commercial rights were a means for government to reallocate the abalone resource from established large companies to individual fishers who were demanding legitimate access to the abalone fishery. This was a key mechanism for informal fishers to enter the formal fishery. In 2003 long-term commercial rights were allocated, following the implementation of the new abalone policy (DEAT 2003).

[8] For the 1999-2000 season, 53 permits were granted to fish 45t of abalone, but statistics have not been found for the 2000-2001 season.

3.4 The Informal Abalone Fishery

Historically, a traditional fishery has existed for decades in South Africa (Hauck 1997, Martin 1995). Prior to the allocation of quotas in the 1970s, harvesting of abalone was open to anyone. Even when stricter rules were in place in the 1980s, people remember harvesting and selling abalone on a small-scale to neighbours and tourists as a means of making pocket money, paying varsity fees or saving for school holidays (Hauck 1997). Fishers stated that they received only R1 per abalone in the 1960s (F35), while this increased to about R20-R25/kg for abalone in the early 1980s (F28, F34). Although there were limitations on daily bag limit (5 per day) and size limit (114mm shell breadth), the introduction of recreational permits in 1983 led to more significant monitoring and control of this sector.

However, in the 1990s, and more specifically in the mid-1990s, the overseas market for abalone opened up significantly, attributed to the growing middle class in China (To *et al.* 2006). The formal abalone divers were receiving R44/kg in the 1991/1992 season, and this increased to R148/kg in the 1996/1997 season (Sauer *et al.* 2003). Similarly, increased opportunities arose for the growth of the informal fishery, with foreign Chinese buyers entering coastal communities to establish markets for export to Hong Kong (Gastrow 1998). With South Africa's border opening up in the 1990s, following the end of Apartheid, opportunities grew to build a black market trade in abalone from South Africa to Asia. With an insatiable demand for South African abalone in the Far East, the informal fishery grew in size and level of organisation. Figure 5.8 highlights the number of abalone that have been confiscated by law enforcement agencies since 1994, but the actual number of abalone harvested informally is estimated to be much higher (ASWG 2007)[9]. A combination of focused law enforcement operations targeting the fishery since 1999, and the sheer increase in informal fishers, have both contributed to the increase in confiscations. In the 2006/2007 season, the Abalone Scientific Working Group estimated that the informal catch (936.4t) was almost nine times that of the commercial TAC at the time (125t; ASWG 2007).

[9] When modelling the informal catch for the TAC recommendation in 2007, it was assumed that only 17% of abalone traded on the black market were confiscated, which is based on qualitative input from rightsholders as well as quantitative assessments of policing effort (Plagányi 2007b).

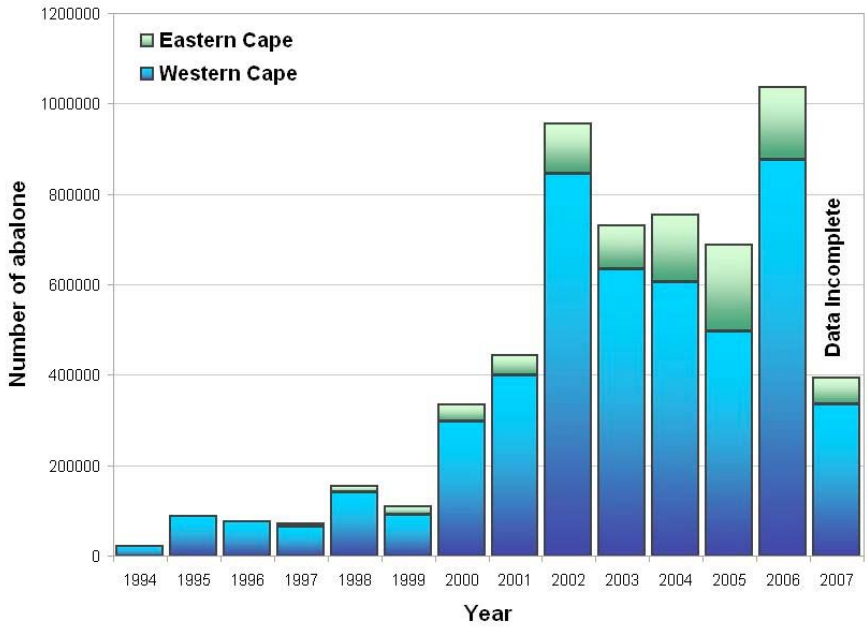


Figure 5.8: Number of abalone confiscated within the southern African region annually (2007 data are incomplete - ASWG 2007)

The two sectors that have emerged in the informal fishery are outlined below and highlight how the fishery has evolved from a largely socio-politically driven activity, to one of organised crime whereby gangs and drugs are increasingly involved. These two sectors, however, have become less distinct over time, with syndicates now dominating harvesting activities at a large scale.

3.4.1 Harvesting and Production

The *modus operandi* of the informal fishery was described in Hauck (1997), and since that time the operations are similar but more organised. Figure 5.9 outlines the basic relationship between the key roleplayers, with the local middleman being a significant figure in terms of organisation (logistics and money). This person is often responsible for organising the buyers, purchasing equipment (especially boats), organising transport and ensuring payment. The divers interact with the middlemen and are then responsible for their own assistants, decoys and local transporters. Lookouts and decoys at all levels are required to avert law enforcement officials, sometimes utilising three or more decoy vehicles as distractions for one shipment (L6). The types of operations vary between the roleplayers but the figure below highlights the hierarchal system that is operating.

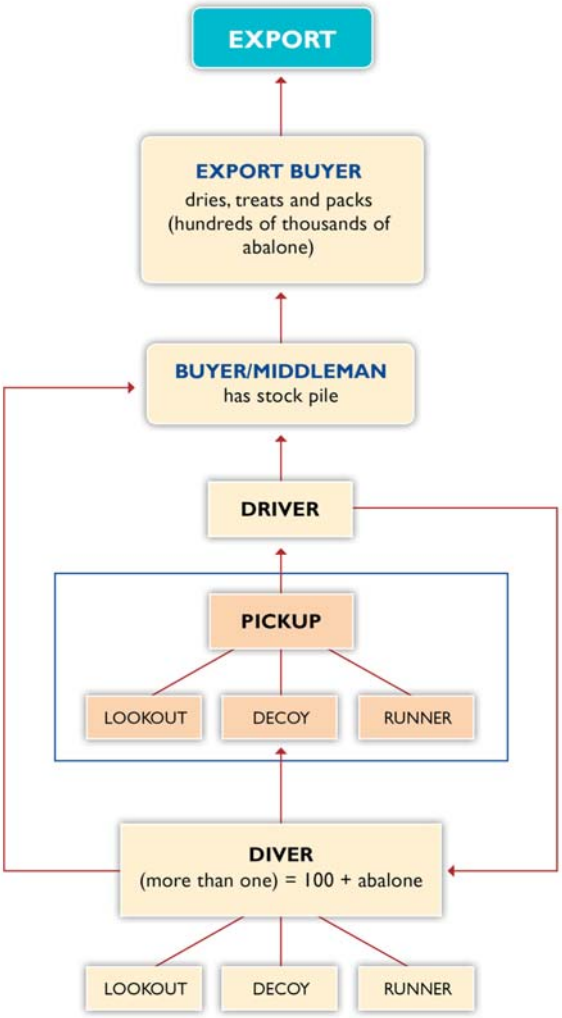


Figure 5.9: *Modus operandi* of informal abalone fishery in South Africa

Various trade routes are used to transport the abalone from where it is harvested to the market. From the harvesting area, the abalone is sent to various collection points, largely in the Cape Metropolitan area, Eastern Cape or Gauteng provinces. Private vehicles are used or rented to move the abalone, and cases have been reported where police patrol vehicles, and ambulances, are used for transporting abalone (Anon 2004, Hauck 1997, A45, A49, A52). In addition, Chinese fishing vessels have been identified with South African abalone, picking up shipments offshore.

Cross-border trade routes have also been identified, and this is verified through Hong Kong trade records that indicate an importation of abalone from other African countries (To *et al.* 2006). Exporting abalone to Hong Kong, via other African countries, 'legalises' the product as there is no restriction on the movement of abalone

in these other countries (Anon 2004). Exporting abalone in this way is through private airstrips, boat or by land and the product is often disguised in packaging as dried fruit or flowers. It is argued that these trade routes are facilitated through corrupt Customs officials (Anon 2004).

Most abalone is exported in dry form as it is very light in weight, can be stored indefinitely, and is easily concealed. Dried abalone is then rehydrated in consumer countries for use. Drying factories have been found throughout South Africa, often located in obscure rural areas and farms (A1, A45).

3.4.2 Traditional fishers in the informal fishery

The informal abalone fishery became increasingly controversial, and grew in organisation, in the community of Hawston (Zone C – see Figure 5.6), located along the southwest coast, in the early 1990s. This was historically a traditional fishing community that had been relocated under Apartheid policy, through the Group Areas Act (41 of 1950). Thus, in 1972, Hawston was declared a 'Coloured Area', while the town of Hermanus (12km away), was declared a 'White Area' (Hauck 1997). These forced removals resulted in segregated communities where poverty was rife and basic services were often not provided. In Hawston, for example, the research by Schutte in 1993 indicated that 74 percent of the 89 respondents that he interviewed did not have access to a flush toilet in their homes and 70 percent stated that they only had access to cold water. Further, the Provincial Development Council in 1995 stated that in the Overberg region (where Hawston, and other abalone-rich communities are located), almost half of the population did not have a standard six education (Grade 8), 35 percent used wood or gas/paraffin as the major source of energy for cooking and they identified this region (within the province) as the one which suffered the greatest in terms of lack of health facilities.

As a result, in the traditional fishing communities of the area (Zones A-D), fishers had harvested abalone for the pot, but also sold it when the opportunity arose to meet basic needs (Hauck 1997). When the black market trade in abalone became more organised in the late-1980s and early 1990s, it provided much-needed income to local

households in impoverished communities. Thus, a growing international market for abalone in the 1990s was welcomed by communities who lived adjacent to a rich abalone resource.

Coinciding with this growing market was a time of political transition in South Africa. Following the democratic elections of 1994, the country immersed itself in legal reform, including a process of developing a new fisheries policy and law. This had significant implications and potential opportunities for small-scale fishers who had been marginalised in the past (Hauck and Sowman 2003). In the abalone fishery, 'protest fishing' emerged which involved traditional fishers openly 'poaching' as a means of protesting government for legal rights to the fishery. They argued that broadening access to the abalone fishery would 'legalise' their activities and recognise them as legitimate fishers, not as 'criminals' (Hauck 1997). This sentiment was reinforced during the fisheries policy process when a special committee, appointed by the Minister to investigate access rights, acknowledged that certain sectors had been excluded in the past and there was a need to reconsider the current allocation of fishing rights (ARTC 1996).

Although a redistribution of rights did take place in the abalone fishery, resulting in 271 rights holders in 2003 compared to just five in 1992, the process of allocation was problematic. Fishers argued that some of the wrong people received access, still excluding large numbers of traditional fishers from the formal fishery (Isaacs 2006a). As a result, even though some fishers were allocated formal rights, others did not, resulting in those being denied access still continuing to fish. In 2007, informal fishers still argued that government had denied them a formal right to fish, despite a number of applications to do so (as explained by both formal and informal fishers). As a result, they argued that they will continue to harvest abalone until their historic rights are recognised. In 2003, when the new abalone fishery policy was put in place to allocate ten year rights, over 1300 applications were submitted to MCM but only 294 diver and diver entities were allocated rights (Maharaj *et al.* 2005). As a result, over 1000 applicants were excluded.

3.4.3 Syndicates in the informal fishery

Allegations of the involvement of Chinese Triads in the illegal abalone trade began in the mid-1990s (Hermanus Crime Intelligence Unit 1998, PICOC 1998). With the opening up of South Africa's borders, following democracy in 1994, Chinese syndicates targeted coastal communities to supply the large demand for abalone in the Far East (Gastrow 1998). Although the relationship between Chinese buyers and abalone divers began with an exchange of money, fishers became increasingly reliant on syndicates for other commodities, such as vehicles and drugs. Abalone became a highly sought after commodity by other illegal groups as well, such as the Cape Flats gangs, largely based in the Western Cape province (Steinberg 2005). Abalone was a lucrative resource to trade. In 1995, abalone divers claimed to earn R200 per kilogram on the black market, which resulted in about R8000 for a 40kg dive in two hours. This equated to four times the average monthly income in the Hawston community, where the informal trade centred at the time (Hauck 1997). One buyer on the black market, for example, claimed to make R50 000 (approximately US$7000) a day in 2000 as he took a cut from each diver and then organised shipment to international buyers (A1). The significant profits that could be made through abalone, and the low perceived risk of getting caught, attracted other roleplayers, including those involved in the drug trade (Steinberg 2005).

In an assessment of the organised abalone trade in South Africa, Steinberg (2005) contextualises this trade with other illegal economies in South Africa, arguing that there were dramatic increases in the export of various contraband in the 1990s. He argues that high value (dollar driven) products that are exported from a weak currency area (like South Africa), generate significant profits by trading these for high value products that are imported. In this way, he explains the link between abalone and drugs, whereby vast quantities of cheaply acquired drugs from East Asia are imported into South Africa and then traded for high-value abalone (which is acquired cheaply in South Africa). Thus, in the mid-1990s the drug trade became infiltrated in the abalone trade as access to cheap drugs for gang leaders was through harvesting of abalone (Anon 2004, Steinberg 2005). As explained by a law enforcement investigation: 'abalone is a commodity to organised crime groups with which they

could acquire other forms of illegal goods…it provides a lucrative resource easily liquidated which provides immense financial resources to criminal groupings…abalone is per unit value more profitable than producing heroin and carries far less risk' (Anon 2004: 37).

Properties along the coast, where abalone was being harvested, were bought by well known drug merchants and gang leaders and communities were being immersed into drug culture (with traditional fishers having to pay protection money, for example) (Hauck 1997, Redpath 2001, Steinberg 2005). As one community informant explained, 'gangs were buying rugby jerseys for school teams and providing loans to local residents – they weren't necessarily perceived negatively' (A35). This was reaffirmed by a senior police detective who was explaining the role of gang leaders in the Western Cape: 'the crime bosses are often the hand that feeds a particular community. These kingpins buy patronage and large sections of certain communities rely on their goodwill, job opportunities and handouts' (quoted in Joubert 2007).

Thus, with the onset of organised criminal groups in the abalone trade in the mid-1990s, exploitation of the abalone resource expanded to roleplayers outside of the traditional fishery. Divers included gang members as well as regular people looking for a quick buck, many of whom left formal employment as a means of 'making big money' (A9). Although attempts were made by some of the traditional fishers, in 2001 specifically (ARHA 2001), to keep these newcomers out of the fishery, this soon became impossible due to a lack of political will within government (to be discussed further below). Thus, large groups of informal fishers began operating in the late 1990s, moving along the coast at the same time as operating further out to sea. *Modus operandi* changed from shore-based diving, with the use of snorkelling equipment, to large boats accommodating up to 16 divers at one time, many using SCUBA gear to access the deeper waters.

From the early 2000s, there have been reports of large scale diving to supply the black market, including groups of 40-60 divers and assistants operating from the same area (L1, L6). For example, Dyer Island, a protected area near Gansbaai, reportedly sees up to 16 boats at one time operating at night and for the informal fishery (Raemaekers *et al. in prep*). Many of the fishers interviewed stated that increased technology in the

mid-1990s (some of which was supplied by the syndicates themselves) contributed to their efficient operations. The onslaught of cellphones, for example, facilitated communication between lookouts, buyers and divers (who used their cellphones underwater in condoms). This minimised their risk of getting caught. In addition, the use of GPS equipment allowed divers to shuck their abalone under the sea and to hide it in bags, recording the GPS coordinates for later pick-up. Each of these measures has significantly contributed to the ease in which the informal fishery could operate without sanctions. The size of these operations, and the level of their sophistication, has increased significantly over the past decade.

3.5 Interaction Between Formal and Informal Fisheries

As highlighted in Figure 5.4 above, there is significant interaction between the stakeholders involved in both the formal and informal abalone fisheries. Interviews with a wide range of stakeholders estimate that up to 80% of the formal abalone fishery is connected in some way to the black market trade. This includes the commercial divers who over-harvest and sell their extra catch to informal buyers, and the factories that process and export both legal and illegal catch. The divers largely operate by diving legitimately during the day under the auspices of their formal permit, but leave undeclared catch under the water, to be retrieved by carriers in the night (with the use of GPS). Other methods also include off-loading abalone on to other vessels in the sea, to be shipped to pre-determined destinations for pickup (A45, A46). Factories, set up for the legal trade in abalone, have also been implicated with undeclared and under-sized abalone, likely bought for the black market from the undeclared catch of formal abalone divers. Informal fishers also claim to sell their catch to established factories involved in both legal and illegal trade (A14, A35).

Although historically (in the mid-1990s) there was significant conflict, sometimes violent confrontations, between the formal and informal fishers, this no longer takes place. Some informants have explained that the mid-1990s was a time when formal abalone divers had invested significantly in the industry (by buying rights) and the sustainability of the fishery looked promising (Tarr 2000). These divers felt threatened by the so-called ‘poachers’, who were jeopardizing their livelihoods

(Hauck 1997). More recently, however, with the reallocation of abalone rights to many more roleplayers, and with the consistent cuts in the annual TAC, the financial viability of abalone rights, coupled with an uncertain future in the fishery, led to an eroding sense of ownership. Former self-proclaimed 'poachers', who received abalone quotas in the new dispensation, explained that with a declining quota every year, they were 'forced' to return to 'poaching' as a means of sustaining their livelihoods (A1, A16). One abalone rightsholder, who in 1995 had been a key informal diver fighting for access to the resource, explained his sentiments:

> 'When I received my quota for the first time, I hung up my poaching gear for good. I was happy – this is what I wanted. The next year they [MCM] decreased my quota and then the next year they did the same. My heart was sore. My chance was gone – I couldn't live on what they were giving me. I am angry and now I am poaching again. My wife doesn't know but I have to do it. I don't have a choice' (A15).

These divers perceived the informal fishery as an ally against government, a means to compensate for a perceived illegitimate annual decrease in their quotas. In addition, the ongoing impunity of the organised informal fishers further undermined the incentive of formal fishers to comply. One rightsholder explained that there was no sense of ownership in the fishery: 'when the TAC continues to decrease, and people are poaching all around you, what you lose other people gain. It drives us to poach – there is no incentive' (A14). Thus, many of the formal abalone divers were benefiting from their historical connections to the black market trade.

4. THE MANAGEMENT SYSTEM

The past twelve years has witnessed a suite of diverse responses by both government and civil society organisations to improve compliance and sustain the abalone fishery (Hauck 2000). Although these interventions have been varied, and have involved a wide number of stakeholders, none have had long-term success. Four key management strategies that were implemented following the promulgation of the MLRA will be discussed. These strategies were important as a means of achieving the new Act's objectives and in response to a concern for the growing illegal abalone

trade. The first strategy, in line with the objectives of the MLRA and similar processes in other fisheries, was to achieve greater equity in the abalone fishery by redistributing rights from existing rightsholders to previously disadvantaged individuals with historic links to the resource. This was to specifically address the unjust allocation of marine resources in the past. The other key strategies were aimed directly at the abalone fishery. The second was to respond to over-exploitation by establishing a TURF (Territorial User-Rights Fishery) system. This policy, initiated in 2003, was an option proposed by government as a means to avoid complete closure of the fishery. A third strategy was aimed at the international market by listing South African abalone on Appendix III of CITES (the Convention on the International Trade in Endangered Species of Fauna and Flora). Fourth, which was a key focus of MCM, was increased law enforcement effort to target the illicit trade in abalone. In addition, the broad management approach taken by DEAT will be discussed, particularly in relation to the decision to close the formal fishery.

4.1 Broadening rights of access to the abalone fishery

A key objective of the MLRA was to achieve more equitable access to marine resources. Consequently, the abalone fishery embarked on a process of transformation. The broadening of the TAC included not only the commercial sector, but subsistence, recreational and limited commercial users as well (see Table 5.1). To account for the increased number of rightsholders, the commercial quota allocations in 2002 decreased from an average of 120t (between 36t and 192t) to just 5.2t (between 1.6t and 38t). The limited commercial allocation was divided into 202 quotas of 430kg each and 26 quotas of 200kg each (DEAT 2004a).

Table 5.1: A timeline of formal rights in the different sectors of the abalone fishery, highlighting the redistribution of rights following the MLRA in 1998

Fishing rights were broadened throughout the medium term (2001-2002) and long-term (from 2003) rights allocation processes. The limited commercial sector was amalgamated into the commercial sector from 2003. The increasing number of rightsholders, alongside a decreasing TAC, is depicted in Table 5.2.

Season	Sector	No. of Permits/ Rightsholders	TAC (t)	Source
1992/3	Commercial	5	605	DEAT 2004a
	Subsistence	*	*	
	Recreational	34 532	664	Sauer *et al.* 2003
1998/99	Commercial	5	515	Sauer *et al.* 2003; Tarr 2000
	Subsistence	236	85	DEAT 2004a; Sauer *et al.* 2003
	Recreational	14 368	220	DEAT 2004a; Sauer *et al.* 2003
2001/2	Commercial	41	314	DEAT 2002
	Limited Commercial	232	62.5	DEAT 2002; Sauer *et al.* 2003
	Subsistence	*	*	
	Recreational	18 777	43.5	A. Mackenzie *in litt.*
2007/8	Commercial (includes limited commercial)	302	75	A. Mackenzie *in litt.*
	Subsistence	*	*	
	Recreational	**	**	

*Subsistence rights were only allocated for three years during the 1998/99, 1999/2000 and 2000/2001 abalone fishing seasons. In 2001 these rights were changed to limited commercial small-scale quotas.
**Recreational permits were suspended from 2003 following the implementation of the new abalone policy (DEAT 2003).

Table 5.2: Evolution of rights allocation in the abalone fishery
(When data from different sources was not consistent, official government publications were used as the primary source)

Although there is no doubt that a greater number of people had been included in the formal abalone fishery, the redistribution of rights had been jeopardised by a number of factors. These included a long and cumbersome application process, community elites often benefiting at the expense of traditional fishers and the allocation of economically unviable quotas in the TAC fisheries (Isaacs 2006a, Sowman 2006). Thus, the *legitimacy* of the rights allocation process had been questioned by traditional fishers.

Further, many abalone fishers argued that alternative tenure arrangements existed, with some explaining a process that was initiated by the Abalone Rights Holders Association (ARHA) in 2001. An abalone management proposal, which was developed over several weeks with extensive collaboration between both formal and informal fishers, came at a time when all stakeholders recognised the need to come together for the mutual interest of sustaining the abalone resource (A38). The crux of this proposal was recognising that the informal fishery was driven to a large degree by the socio-economic circumstances of coastal communities, and by the fact that many fishers claimed they were not given an adequate opportunity to access the fishery (ARHA 2001). Thus, the ARHA proposed that a percentage of the estimated poaching catch (50%) be legitimised and allocated to new entrants, who could actively assist in protecting the abalone resource. In theory, this would not decrease the TAC of current rightsholders, yet it would increase the participation of new entrants at the same time as decreasing the overall TAC (which included illicit catch). As they state: 'this approach should address the issue of transformation as well as remedy the alienation from the formal economy by poor black coastal communities, and, above all, place the management of the abalone resource on a sound basis' (ARHA 2001: 2).

Although this proposal was groundbreaking in its approach to negotiate between the informal and formal fisheries, it did explicitly state that the success of the proposal was dependent on new entrants 'renouncing all involvement in illegal harvesting' and actively participating in the protection of the resource (ARHA 2001: 6). It recognised the need to bring on board informal fishers with a stake in the resource at the same time as alienating, and actively eliminating, the role of gangs and organised crime. There was a strong sense at the time, amongst formal and informal fishers, that the means were in place to make this happen (Hauck 2000). Unfortunately, however, there was no response to this proposal from MCM, resulting in the collapse of negotiations and fuelling animosity towards government. Reflecting on this proposal six years on, many stakeholders involved in the process expressed significant frustration. As one abalone rightsholder explained: 'things could have turned out so differently. I have a quota but many people I know don't. The 2001 proposal had all

the key people on board and that was our chance to turn things around and give people ownership' (A19).

4.2 The Abalone Policy of 2003 and its Implementation

The abalone policy of 2003 (DEAT 2003), which established the parameters for the 'long-term' (10 year) rights allocation, proposed a new management plan for the abalone fishery that was considered a 'radical shift' forward (DEAT 2003: 3). It clearly stated that current management strategies had 'failed to effectively curb poaching' and that the abalone resource 'has been seriously overfished and it has collapsed' (DEAT 2003: 3). Indeed, this policy was a progressive way forward as it introduced the concept of co-management, recognised ecosystem impacts (the importance of managing the migration of west coast rock lobster into key abalone areas), suspended the recreational fishery in the interests of sustaining commercial livelihoods, established a system of ten year rights and initiated a TURF system.

Underpinning these policy decisions were the key objectives of instilling a sense of ownership amongst rights holders, ensuring cooperative management of the abalone resource, ensuring the long term viability of the fishery and sustaining employment (DEAT 2003). The possibility of closing the fishery was highlighted in the policy and this was identified as one of three management options to be considered. The other two options included maintaining the status quo or implementing a TURF system, whereby the abalone harvesting area would be divided into zones and allocated to adjacent rightsholders (see Figure 5.10). This TURF concept has been implemented successfully in Chile since the early-1990s, whereby local fisher organisations were allocated specific geographical areas to fish. It is argued that this approach created a sense of 'ownership' over the fishing area and encouraged the concept of co-management, where fishers, independent scientists and government collaborated together to manage and protect the fishery resources (Gallardo 2008, Castilla *et al.* 2007, Morenzo *et al.* 2007; Gelcich *et al.* 2005).

Although MCM adopted the third option of the TURF system, the policy clearly highlighted concern for the future of the fishery and advocated the need to sustain

fishers' livelihoods. Closure of the recreational fishery, for example, was justified in the policy by stating that it was more important to sustain the commercial fishery at a time when the resource was being overexploited and people's livelihoods were under threat (DEAT 2003). Further, the policy indicated that the Abalone Processing Factories' (APF's) rights would expire after three years. MCM had attempted to maintain the APFs interests in the abalone fishery through the processing and marketing of abalone at the same time as potentially reallocating this TAC (225t) to other rightsholders. Furthermore, this policy explicitly stated that a co-management process would be initiated with rightsholders in each TURF in order to manage the resource cooperatively.

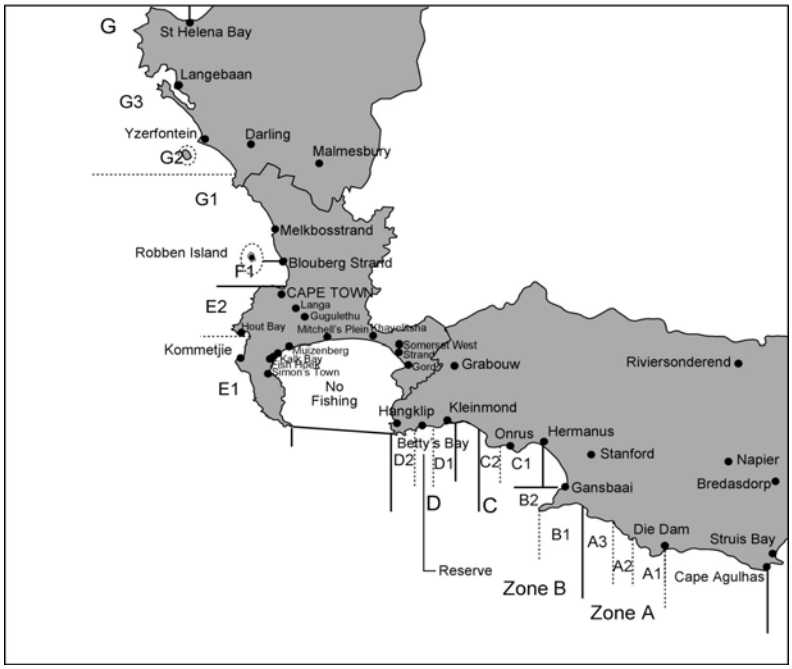


Figure 5.10: Primary and secondary zones allocated for the TURF policy of 2003 (DEAT 2003)

Although this policy embraced a number of principles that ought to have enhanced the management of the abalone fishery, there are significant obstacles that minimised the effectiveness of the policy. One key issue has been the ineffective implementation of the TURF system due to the sharing of some zones between rightsholders, instead of ensuring exclusive use by those living adjacent to the zone. From the very start, the zone with the largest number of rightsholders (Zone C with 152 divers and 14 diver entities) had only an 8t TAC in the 2003/4 season. Zone D, on the other hand, was

also allocated 8t, but had only 15 divers and three diver entities and Zone B was allocated 145t with 28 divers, five diver entities and five APFs. As a result, it was necessary to 'share' zones, in order for rightsholders (particularly in Zone C) to benefit by diving in adjacent secondary zones. However, the non-exclusivity of the secondary zones removed the most important objective of the management strategy – a sense of ownership. Although MCM supported the policy on paper, they were in an unenviable position whereby the largest number of abalone fishers (both historical and informal) were concentrated in Zone C, but this was the very area where informal fishing was concentrated and where the resource was over-exploited. In 1998 there was already a 90% cut in the TAC allocation to Zone C, with current resource modelling indicating low recruitment levels (less than 5%) in this area (ASWG 2007). Thus, the policy was initiated at a time when the resource was already in a state of crisis.

A second key concern was the lack of consultation and engagement with the stakeholders in the abalone fishery in order to develop meaningful co-management arrangements. A jointly agreed strategy to implement the TURF system (with the identified stakeholders) was never put in place and there was minimal budget and capacity within MCM to establish co-management. This lack of consultation with the fishers, coupled with annual cuts in the TAC, further alienated them from management, despite a progressive policy on paper.

Finally, the underlying principles of the abalone policy were further questioned when drastic measures were taken to officially close the abalone fishery. The Minister announced the immediate closure of the abalone fishery in October 2007, but due to significant protests by a wide diversity of stakeholders, agreed to reopen the fishery for a final season, but with a significantly reduced TAC (75t, as opposed to 125t the previous year). The reduction in the TAC was targeted specifically at Zones A and B, with no reduction in Zones E and G (see Figure 5.10). Immediate conflict in the industry emerged as rightsholders debated the allocation of this TAC. At a meeting in November 2007, MCM encouraged an equitable cut in the TAC of all rightsholders in order to sustain employment for the vast majority of those living in Zones A to D. However, the rightsholders in Zones E and G argued that this decision contradicted

the TURF policy. They claimed that ownership over their zone, and the fact that they had managed it sustainably, would be compromised by now reallocating areas of their zone to other rightsholders. Furthermore, they argued that the incentive has now been removed from them to protect their area, as not only has their individual quota been reduced, but their zone is no longer allocated solely to adjacent rightsholders (Industry-MCM meeting 27 November 2007). Thus, despite a potential 'radical shift forward' in the abalone policy of 2003, implementation challenges proved complicated from the beginning to the end.

4.3 CITES

The international demand for abalone and its impact on South African trade has not been adequately researched or understood over the years. Preliminary attempts to do so have been undertaken by TRAFFIC-Southern Africa, a wildlife trade monitoring network, which has identified some interesting trade dynamics. These have included an assessment of Hong Kong import data, which has indicated a far greater import of South African abalone as opposed to that indicated by South African export data (indicating a significant illicit trade), a greater understanding of the role of farmed abalone on the trade in wild abalone (which has less of an effect than was anticipated due to the different taste) and an analysis of abalone trade routes, which have highlighted the role of other southern African countries in laundering South African abalone (*pers comm.* M. Bürgener, TRAFFIC-Southern Africa 2007).

This information has led to the increased realisation of the need to incorporate trade and market information into governance arrangements for the fishery and has led to the listing of South African abalone (*haliotis midae*) on Appendix III of CITES. As Willock *et al.* (2004) explain: 'with trade in perlemoen [abalone] being almost entirely international it has accordingly become necessary to explore the use of tools that would involve the assistance of consumer States in tackling illegal trade in the species' (p. 30). Through CITES, which is an international agreement between governments to ensure that species are not threatened by international trade, controls are put in place, trade is authorised through a permitting system and species are listed on one of three Appendices depending on the level of protection that is required

(Willock *et al.* 2004). The listing of abalone on Appendix III, the least stringent Appendix, took place in May 2007.

Although no formal evaluation of the impact of the CITES listing has yet been conducted, concerns are highlighted by assessing Hong Kong import data. This information indicates that even after abalone was listed on CITES there were abalone imports from Mozambique, Swaziland and Zimbabwe, none of which are abalone-producing countries (Raemaekers *et al. in prep*; *pers comm.* M. Bürgener, TRAFFIC). Further, there is speculation that abalone CITES permits are being 'recycled' due to permits not being properly endorsed by DEAT before exporting (*pers comm.* M. Bürgener, TRAFFIC). As a result, there are a number of administrative procedures within the South African authorities that need to be addressed, as well as increased awareness of the abalone CITES listing in importing countries.

4.4 Law Enforcement in the Abalone Fishery

From the outset, a key strategy of government to address the informal fishery has been to increase law enforcement. This focus on law enforcement has intensified in response to the increasingly organised informal fishing network, with MCM directing efforts to increase its capacity in terms of investigation, establish partnerships with other law enforcement agencies, devolve compliance responsibility to the local level and second specialised prosecutors to focus on serious marine offences (like abalone).

The presence and/or absence of law enforcement authorities has been a critical issue discussed by all stakeholders in this research. Irrespective of each individual's standpoint, there is overwhelming recognition of the important and necessary role of effective law enforcement in governing the abalone fishery and influencing the behaviour of both formal and informal fishers. Methods of achieving effectiveness, however, are varied and often debated, with corruption being a key issue of concern.

4.4.1 Operation Neptune

A focussed law enforcement strategy targeted specifically at the abalone fishery began in 1999. With the increased pressure on fishery control officers at MCM to address marine poaching, and with the realisation that they did not have the capacity to intervene in criminal networks, a co-operative policing venture was initiated with the South African Police Service (SAPS). This venture, known as Operation Neptune, was initiated as a means to curtail abalone poaching on the southwest coast, and also included partnerships with the navy. Operation Neptune was implemented as a direct response to outcries from coastal communities, environmental organisations and community policing forums along the southwest coast that blatant poaching in their areas needed to be addressed. Thus, the operation was initially implemented for six months but was then extended, off and on, until early 2005.

With a budget that began at approximately R1.5 million in 1999 (Hauck and Hector 2000), it increased to R4.5 million in 2004/5 (Hara *et al.* 2005) and focussed on two key objectives over this time. The first, which was the priority focus, was to engage in proactive policing that increased law enforcement visibility along the coast and deterred informal fishers from entering the sea. This was a direct attempt to protect the marine resources from further decimation. The second was to react to known informal fishing by making the necessary arrests and seizures and by gathering effective intelligence. A preliminary evaluation of Operation Neptune in 2000 indicated some positive spin-offs, such as greater law enforcement visibility along the coast, increased sense of security within coastal communities and increased coordination between law enforcement agencies (Hauck and Hector 2000). However, some key concerns were also identified that included corruption, insufficient interaction with broader stakeholder groups (such as fishers) and the lack of a long-term strategy that linked with broader management interventions. Further, evidence seemed to indicate that although Operation Neptune disrupted some poaching activity, the informal fishery simply changed its *modus operandi* and moved to new areas (Hauck and Hector 2000).

4.4.2 Delegation of compliance authority

In addition to Operation Neptune, MCM made a significant decision in 2003 to delegate compliance authority (largely related to the abalone fishery) to a local municipality where the informal trade was flourishing, and where an important Marine Protected Area was located. In recognising their inability to address the informal fishery, and the potential effectiveness of local level decision-making, MCM agreed to establish a Memorandum of Understanding (MOU) with the Overstrand Municipality to implement a pilot project. The Overstrand municipality was unique in having a well capacitated conservation department, as well as a committed NGO, Seawatch, which had been operational for many years. The municipality initiated the Management Action for Resources of Inshore and Nearshore Environments (MARINEs) and embarked on an agreement with MCM to become the service provider for fisheries compliance and awareness in its area.

Following a successful one year pilot programme, a three year contract was signed, financed from the MLRF. As a result, the MARINEs grew from a staff contingent of eight in 2003 to 45 in 2005 and a budget from R900 000 in 2003 to R4.5 million in 2005 (Hauck and Kroese 2006). According to their contract with MCM, they were responsible for compliance within the boundaries of the Overstrand municipality (largely encapsulating commercial abalone zones A-D), and their activities included 24 hour visibility, patrols and rapid response, slipway control, follow-up of cases, awareness-raising, liaison with schools and communities and co-ordination with other departments and organisations (such as Seawatch and the SAPS). Further devolution of authority was given to South African National Parks, through Table Mountain National Park in the Cape Peninsula, to assist with fisheries compliance in this area. These initiatives coincided with the development of a special investigative unit within MCM, to focus on serious marine offences and to strategically collaborate with other law enforcement agencies such as the South African National Defence Force, particularly the navy and air force, the Department of Justice's Asset Forfeiture Unit and Directorate Special Operations (known as the Scorpions). This led to increased capacity and effort being placed into law enforcement efforts within MCM (Hauck and Kroese 2006).

A further attempt, in 2004, to enhance law enforcement even more in the abalone harvesting area of the Western Cape, was through the proposed implementation of Operation Trident (MCM 2004). This was part of an 'Abalone Protection Plan', which took a broader approach to the abalone fishery but particularly emphasised the need to establish more effective law enforcement strategies (MCM 2004). The budget for Operation Trident included ongoing support for the MARINES (with a team of 45-50 members) and was estimated at approximately R28.5 million (MCM 2004). In 2006, however, MCM terminated the MOU with the MARINES (which was seen as highly controversial), arguing that personnel would be amalgamated into MCM structures. This had significant repercussions, particularly in terms of a loss in the number of personnel, due to officers being widely distributed to MCM compliance stations, as well as a disintegration of the co-ordination that had existed between the regions (A45, A46, A47, A49, A59).

4.4.3 Environmental Court

A further key development related to law enforcement was the establishment of South Africa's first environmental court in February 2003, co-funded by DEAT and the Department of Justice, created primarily to target abalone-related offences (Snijman 2005). A special court was justified on the grounds that abalone cases had a low priority in the justice system, the conviction rate was very low (estimated at 10%) and sentences were generally lenient (Snijman 2005). It was argued that effective prosecution and punishment of offenders was important to support the efforts of law enforcement agencies to improve deterrence (Snijman 2005). With two specialist prosecutors employed by MCM, knowledge of marine offences was high and challenges were made to loopholes in legislation. In its first 18 months, the court finalised 166 cases, effectively disposing of the previous backlog, with a conviction rate of 75%, achieved through a process of plea bargaining where appropriate. This court, however, was closed in 2006. The national Department of Justice had taken a decision to close a number of specialist courts in order to streamline costs. Although this decision was not widely supported by personnel in DEAT, MCM retained its own prosecutors in order to maintain the capacity to deal with marine-related offences.

4.4.4 Law Enforcement Challenges

The closure of the environmental court, the amalgamation of the MARINES into MCM, and the growth of the informal fishery led to high levels of despondency and frustration amongst the formal fishery, coastal communities and law enforcement authorities. The overall assessment of law enforcement over the past decade is that it has been inadequate and ineffective. All stakeholders outside of the informal fishery argue that a key factor to the growing illicit trade is ad hoc law enforcement, which has resulted in insufficient risk of detection. Although law enforcement strategies have evolved over the years, particularly in relation to intelligence-based investigations, informal fishing continues on a regular basis along the coast.

As one respondent stated:

> 'I called in MCM because there was poaching in the marine reserve. They arrived but didn't have access to a boat…so the poachers basically waved at us and carried on with what they were doing' (Formal abalone fisher A37).

The consensus is that the informal abalone trade is 'easy money' because the risks are low. It is estimated that about 17% of illicit activity is detected (Plagányi 2007b), and the costs incurred by arrests and confiscations are the 'costs of doing business' (A35).

Many law enforcement authorities argue that there is a lack of capacity to implement law enforcement effectively, which translates to not enough personnel and equipment. Although a focus has been on strengthening investigative capacity to target organised middlemen and utilising legal instruments to prosecute money laundering offences (Hauck and Kroese 2006), the informal fishery has adapted and continued to grow over time. In his assessment of the challenges of combating the illicit trade of abalone in South Africa, Steinberg (2005) states that 'if there is a single lesson to be learned from current experience, it is that the key to any enforcement strategy is to keep the resource in the water' (p. 12).

This objective, to deter informal fishers from entering the water, was considered key to both Operation Neptune and the Overstrand MARINES (DEAT 2004b). The MARINEs, for example, created a 24-hour presence through shift work, and one of

their indicators for success was the number of divers they deterred from entering the water. Although it was impossible for them to be everywhere, all of the time, they claim to have significantly decreased poaching incidents from previous months and years (MARINEs 2003, 2004). In a survey conducted in 2005, respondents living in the MARINEs area stated that the risk of getting caught was 'high' as opposed to other areas, where respondents stated that the risk was low (Hauck *et al.* 2005).

However, interviews with informal fishers indicate that increased law enforcement will never eradicate the illicit trade. Key to this argument is corruption. Many stories abound about corrupt law enforcement agents, with informal fishers arguing that they could not work without it. One key informant explained that in some organised fishing operations, divers are expected to pay R1000 each to law enforcement officers in order to 'turn a blind eye' (A34). This easily equates to a month's salary in one night. Similar rewards are offered for transporting abalone in official vehicles, which is particularly attractive to station-level personnel who are paid poorly (Anon 2004). Although law enforcement agencies are aware of the allegations, they claim that it is difficult to identify witnesses to testify in court (A45). Nevertheless, some high profile cases of corruption have been uncovered (Hauck and Kroese 2006), including three MARINEs, who were arrested with abalone in their possession and consequently suspended. The MARINEs then instituted a lie detector test for future applicants, which resulted in 8 of 30 applicants in 2003 withdrawing their applications (A46).

One key informant, who is currently a right holder but who had historically been actively involved in the informal trade, explained in great detail the role of corruption at high levels in government. He stated that many of the informal fishers in the 1990s had a military background, which meant that they had contacts in high places. He was personally involved in a number of transactions involving hundreds of thousands of Rand that enabled them to continue to trade on the black market. He clearly stated that there was no political will to disable the informal trade because 'too many people, at high levels in government, are benefiting from illegal abalone' (A28). Thus, corruption has a significant crippling effect on law enforcement strategies.

Interestingly, despite all the challenges that were highlighted in terms of law enforcement, there was still recognition that law enforcement was needed. Key to this statement, however, was the need to ensure that law enforcement was implemented in conjunction with other strategies that created incentives to comply. The perceived illegitimacy of access rights and management decisions (to be discussed below) weakened potential partnerships that could have developed between the fishers and government. An expectation of government was that formal fishers would 'protect' their areas from informal fishing, following the allocation of long-term rights (DEAT 2003). However, ongoing decreases in the TAC have largely removed the incentive for formal fishers to comply as quotas became economically unviable and the future of the fishery was uncertain. Even for those who argue that fishers should still protect what they have, it is difficult to do so when the informal fishery grows with little mitigation from government.

In communities where people fished together historically in the informal fishery, and where some now have quotas and others don't, there is the sentiment that 'we don't pimp' (A28). Even when rightsholders acknowledge the negative impact of the illicit trade on the formal fishery, they explain their lack of cooperation with law enforcement through four key responses: (1) everyone knows each other and/or are related so it is difficult to go to the police; (2) there is empathy with the socio-economic circumstances of some of the informal fishers; (3) there is no trust in law enforcement authorities due to corruption; and (4) there are high levels of fear due to the involvement of gangs and organised crime. As a result, by expecting formal fishers to cooperate with law enforcement, without addressing some of the fundamental issues relating to the fishery, is considered unrealistic: 'you need everyone involved around the table to make this fishery viable. Law enforcement is just one aspect of it' (A28).

4.5 Analysis of Management Approach and Consultation

The management of the abalone fishery has been described by most stakeholders as a 'failure'. This is largely due to the perceived growth of the informal fishery over the past decade and the inadequate strategic focus of MCM to manage the fishery. One assessment of the fishery in 2003 clearly stated that 'the current management system

is inefficient; it is reactive rather than proactive, over-stretched and inadequate' (Cederrand 2003). More recently, frustration with the management of the fishery has escalated due to the announcement in October 2007 to ban the commercial fishery with effect from February 2008 (DEAT 2007a).

The most significant concern related to all aspects of management over the years has been the alienation of broad stakeholder groups (including the formal fishery) in management decision-making. This has resulted in a top-down approach that has engendered mistrust and outright animosity towards MCM by the various stakeholders. This was already discussed in relation to the rights allocation process and the abalone policy of 2003. Although attempts were made to legitimise informal fishers through the subsistence and limited commercial rights allocation process, the approach, and means with which this was done, was problematic and resulted in *bona fide* fishers still being excluded from the fishery. Similarly, although the abalone policy was progressive in its attempt to institute co-management and a TURF system, its implementation had largely excluded the key stakeholder groups. Fishers received little assistance from MCM to establish local institutional structures nor to coordinate the policy with law enforcement strategies. Although some meetings took place every year to discuss new permit conditions, and the allocation of a decreasing TAC, the sentiment was that this was a far cry from cooperatively managing the resource.

Further frustration relating to participation and consultation has emerged due to the fishers' involvement in the Abalone Scientific Working Group (ASWG). Although acknowledging the importance of this consultation, the fishers' frustration peaked at the end of 2006 when a jointly agreed recommendation for the 2006/7 abalone TAC was overturned by other scientists at MCM. The 'revised' recommendation was submitted to the Minister under the auspices of the Abalone Scientific Working Group, with the closure of key commercial zones. This led to an outcry by the formal fishery that questioned the process of consultation and decision-making, highlighting themselves as 'tokens' to make a process seem consultative when it really wasn't.

To fuel the animosity in the formal fishery, the same process happened again for the TAC recommendations for the 2007/8 season, which were particularly controversial due to the threat of closure of the fishery. In this case, although a separate document was submitted to the Minister from MCM scientists, it was identical to the report of the ASWG, except for very important deletions of key sentences and paragraphs relating to the socio-economic issues of the formal fishers, and the feasibility of a viable fishery if the informal trade was decreased. In fact, one of the sentences that was deleted in the final report to the Minister was: 'Closure of the commercial fishery, in the absence of a revised compliance approach and community buy-in, cannot result in resource recovery, and could worsen poaching' (ASWG 2007: 14). These two reports served as evidence for a court case initiated by the formal fishers to challenge the closure of the fishery, and to highlight the lack of consultation related to this decision (Anon 2007).

Fourth, in addition to top-down decision-making, another key issue related to management is that of institutional arrangements. Related to the issue above was the lack of local, regional and national institutional structures to facilitate the cooperative management of the fishery. Even though compliance functions were delegated to local institutions (Overberg Municipality and Table Mountain National Park), these activities were separated from management responsibilities and decision-making, which led to a fragmented approach to the management of the fishery (A46, A50). Law enforcement authorities in both of these institutions highlighted the obstacles related to enforcing rules and regulations that were not considered legitimate by the stakeholders, but yet they were not in a position to influence decision-making. Further, despite the co-management objectives of the Abalone Policy of 2003, there were no institutional changes in MCM to facilitate the implementation of extension officers and social research, both of which are considered key to initiating co-management arrangements (Hauck and Sowman 2003). In fact, an examination of MCM's budget at the time indicates that there were no funds directly allocated to the implementation of the policy, which required extensive institutional change and strategic development at both zonal and regional levels (Hauck *et al.* 2005).

4.5.1 The Closure of the Commercial Fishery

It is necessary to discuss the rationale behind government's decision to close the commercial fishery as it clearly highlights problems with the approach to management that has been adopted by MCM. Closure of the fishery has been discussed for many years, with researchers highlighting the critical state of the resource and fear of commercial collapse as far back as 2000 (Tarr 2000). Even the Abalone Policy of 2003 highlighted total closure of the fishery as one of three options for management. In 2006 the Minister requested a legal assessment of the potential closure of the fishery (Daniels *et al.* 2006) as well as an internal department review of the abalone fishery to assess the status of the fishery (DEAT 2006). During these assessments, although the formal fishery was aware of the threat, there were no active attempts by MCM to engage with fishers to strategically plan for the future of the fishery. Even in mid-2007, when the threat of closure was imminent, there had not been one abalone management meeting between the rightsholders and MCM. Further, the formal fishers were notified of the ban through the national media, and not through a direct consultation.

The rationale given by MCM for the ban on commercial fishing is highly controversial. Independent scientists, who are involved in stock assessments for the abalone scientific working group, indicate through their models that a sustainable abalone fishery is still possible if the informal offtake was reduced (ASWG 2007). The size of the informal fishery, as opposed to the commercial fishery, is highlighted in Table 5.4 below:

Zone	A	B	C	D	E	F	G	Total
Recommended TAC for 2007/08	**0**	**75**	**0**	**0**	**12**	**20**	**18**	**125**
Last TAC (2006/07)	0	75	0	0	12	20	18	125
Poaching Estimates (2006/07)	578	248	0	101	1.4	Unknown	8	936.4

Table 5.3: Recommendations for the Total Allowable Catches (in tons) for each zone for the 2007/8 season. The previous season's figures are given in the middle row and estimates for current levels of poaching in the last row (ASWG 2007):

In their report to the Minister, for the 2007/08 TAC recommendations, the ASWG explicitly state:

> '…were it possible to immediately reduce current estimated [poaching] levels by half, then commercial catches of 25t in Zone A and 100t in Zone B are estimated to be sustainable. Note further than should poaching be reduced immediately to zero, then it is estimated that commercial catches of 400t and 300t would be sustainable for Zones A and B, respectively…' (ASWG 2007: 8 – sentence deleted from second report).

Thus, there are questions about the rationale of alienating the formal fishery (and jeopardising legitimate livelihoods) as opposed to strategically assessing a means to minimise the informal fishery. It is argued by members of the formal fishery that the decision to close commercial harvesting due to an over-exploited resource is illegitimate when an informal fishery continues to thrive. As one rightsholder stated: 'they are closing us down in order to provide more abalone for the poachers!' (A39).

Working group meetings consistently highlighted the rightsholders' concerns about MCM's *approach* to managing the abalone fishery. As one zonal representative clearly stated: 'we shouldn't be assuming that poaching will stay the same, and therefore we must decrease the legal TAC. We are tackling this problem from the wrong angle. We should be asking, "how much does poaching need to decrease in order to have a sustainable fishery?" Then we make a plan' (A23, ASWG meeting 20 August 2007). Interestingly, this similar sentiment was discussed in a document developed by DEAT in 2004 entitled 'Abalone Protection Plan', which states that 'closure of the abalone fishery would not ensure the recovery of the abalone stock, because illegal exploitation will not stop' (p. 2). Further, it recognises that the commercial fishery can only be sustained if poaching is reduced by half, therefore requiring law enforcement to be trebled, which then outlines the rationale for Operation Trident. However, as discussed earlier, Operation Trident and the MARINEs were disbanded in 2005. Ironically, the Minister stated in his press release that they would increase law enforcement in order to effectively enforce the ban (DEAT 2007a). This again caused an outcry from the formal fishers, who questioned

why law enforcement had not been increased earlier, with the aim to protect and sustain the livelihoods of commercial fishers. Thus, the decision by the Minister to ban the commercial fishery clearly highlights the centralised approach that has been taken by government to manage this fishery, which has alienated the majority of stakeholders from taking management responsibility.

5. KEY FACTORS INFLUENCING COMPLIANCE IN THE ABALONE FISHERY

Non-compliance in the abalone fishery has highlighted the complexity of fisheries management, as well as the diversity of factors that influence behaviour, how they interrelate and how they change over time. By drawing on the preliminary conceptual framework introduced in Chapter Three (Figure 3.2), this section will provide an overview of the key factors that are influencing compliance behaviour. Critical to an understanding of the evolution of the informal abalone fishery are the political and historical factors, which are encapsulated in the preliminary conceptual framework as power and law. Originating as a small-scale fishery in coastal communities, there is a history of abalone harvesting as a source of food and basic income. As an international market emerged, and with catches reaching a peak in the mid-1960s, increased state regulations were put in place to limit harvesting. As a result, small-scale fishers were increasingly marginalised from this fishery. Although some abalone fishers remained as divers for the five big companies, they argued that they were exploited (Hauck 1997), and fought for their own individual rights during the fisheries transformation process in the mid-1990s.

From an institutional perspective, the policies and laws that were put in place to allocate rights, and manage the fishery, held little legitimacy in the eyes of the traditional fishers. Even though some of these policies adopted a more integrated approach to management, and led to important developments such as the reallocation of rights and the initiation of a TURF system, many small-scale fishers remained excluded. Further, with an increased concern over declining stocks, broader approaches to management were abandoned in favour of stricter and harsher law enforcement. Figure 5.11, compiled by Raemaekers *et al.* (*in prep*), glaringly makes

this point. Despite the rationale by the state to close the abalone fishery (ignoring the social, political and economic repercussions), and arguing that the resource can no longer sustain a commercial fishery, the fact remains that an informal fishery continues to harvest large quantities of abalone.

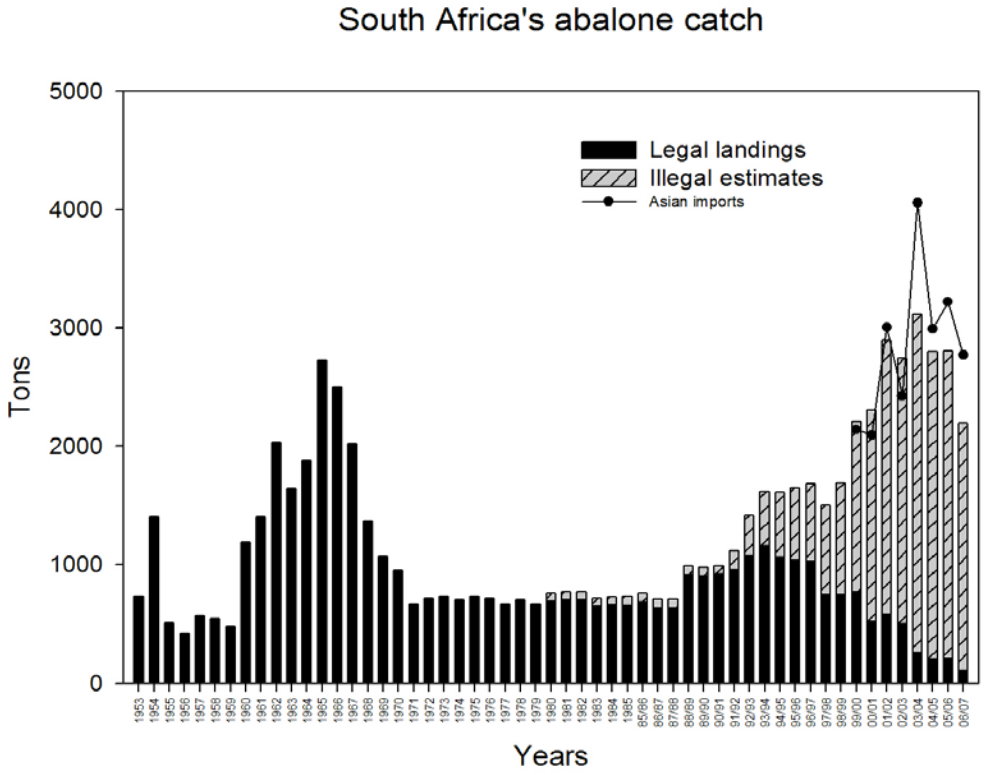


Figure 5.11: 'Legal and illegal abalone fisheries landings. All data is represented as whole mass abalone. Legal take is the sum of commercial, subsistence, limited commercial and estimated recreational landings. Illegal take is the combination of modelling estimates by Plagányi and Butterworth (*in prep.*) and Raemaekers and Britz (*in prep.*) for the Western and Eastern Cape respectively. 'Asian data' represents available abalone import data (live, fresh or chilled; frozen, dried and canned; all weights were converted to whole mass) into Hong Kong, Japan, Taiwan and Mainland China from South Africa, Mozambique, Swaziland and Zimbabwe for the period 2000 to August 2007. This represents only the available data. Estimates of illegal take for the zones E –G in the Western Cape were not included, as well as the abalone aquaculture production which was 104 tons in 2000 and steadily increased to 900 tons in 2007' (Raemaekers *et al. in prep*)

The fact that the informal traditional fishery had never been effectively formalised in the late 1990s, and that strong institutional structures were not adequately put in place to jointly manage the fishery (despite supportive policies), many small-scale fishers continued to be alienated. Further, despite increased attempts at law enforcement,

these initiatives received very little social support. The decision to close the fishery, particularly in light of the graph above, further heightened the animosity towards the state, and fuelled ongoing informal harvesting.

Inequitable laws, the failure of institutional structures and economic incentives, were all key drivers of the informal syndicates. The international market for abalone significantly injected financial rewards into abalone harvesting. In the early 1990s, when most traditional fishers did not have access to the abalone fishery, the informal trade became a lucrative economic opportunity. Outsiders were also attracted to this easy money, and they perceived the abalone trade as largely risk-free. Although there was no local support for people entering the fishery as a means to 'get rich', or to contribute to other criminal activities, there was little trust in law enforcement. Further, this expansion of the informal fishery to include gangs, drug merchants and other opportunists led to a situation whereby weak social controls had little impact.

Thus, it is also critical to understand the social factors in the context of this fishery. The informal traditional fishery emerged as a highly accepted livelihood strategy within coastal communities, due to the perceived exclusion and marginalisation of traditional fishers. As a result, fishers and the broader community did not engage in informal controls or sanctions to mitigate these activities. Although there was some conflict in the mid-1990s with those abalone divers working with the big companies (who likely perceived some incentive to protect the resource), this conflict became minimal as everyone equally fought for legal access during the rights allocation process. Further, even after rights were re-distributed, many people were still excluded, which caused divisions in the communities and made it difficult for fishers to sanction people that they knew. These social conflicts were significant, and were not adequately recognised by the state, which expected the abalone rightsholders to 'defend' their TURF after the 2003 policy was implemented. Further, with high levels of corruption, and the intrusion of 'outsiders' into the communities as a means to gain access to this lucrative trade, local fishers and fisher families found it increasingly difficult to 'protect' their zones from informal fishers. This expectation of the state, however, further exacerbated already high levels of animosity as

rightsholders felt that they were not receiving the support that they needed to ensure the sustainability of the fishery.

Finally, the biophysical aspects of the abalone fishery need to be mentioned. Although the underlying drivers of non-compliance are not directly related to the natural system, it is an important aspect of management that needs to be recognised, particularly in terms of how it *affects* fisher behaviour. For example, the migration of the rock lobster resource to key abalone areas (Zones C and D) has exacerbated the poor recruitment of abalone and negatively impacted on the TAC in these areas. This was problematic for the abalone policy of 2003 as the TURF for Zone C had the largest number of rightsholders despite the fact that the resource was in a state of crisis. This contributed to the 'sharing' of zones in the implementation of the policy, as well as the migration of the informal fishery to other areas. Thus, the natural processes affecting the fishery need to be incorporated into a broader understanding of why fishers are adopting particular harvesting strategies.

The factors highlighted above have significantly influenced the transition of the abalone fishery to one which is controlled and driven by an illicit market. The fact that the fishery has been commercially closed, despite evidence of a thriving informal trade, indicates that the current management approach is flawed. By focussing on law enforcement to 'solve' the informal trade not only ignores the underlying drivers, but exacerbates divisions between the state and coastal communities. As a result, despite the closure, the underlying factors that are fuelling the informal fishery remain.

6. CONCLUSION

The abalone fishery has evolved from a traditional, politically-driven informal fishery to a highly organised fishery dominated by a lucrative illicit international trade. This is a complex fishery to manage, and MCM has not been faced with easy decisions, particularly amidst a rapidly declining resource. Attempts to manage the fishery have been varied and some progressive policies on paper have emerged, which have adopted more integrated approaches to management. For example, the Abalone

Policy (DEAT 2003) and Abalone Protection Plan (DEAT 2004b) clearly highlighted the need to enhance strategic law enforcement in conjunction with the TURF system, with particular emphasis on sustaining employment in the fishery and building local level co-management institutions. Even in DEAT's assessment of the fishery, prior to the decision to ban the commercial fishery, emphasis was placed on the development of a comprehensive strategy to build co-operation in the areas of resource management, socio-economic development and law enforcement (DEAT 2006). However, the *process* (including institutional support and budget) to develop and implement such a strategy with all key stakeholder groups had never materialised.

The most recent, and critical, decision by MCM to close the commercial fishery, however, highlights a more centralised approach to management. MCM holds the power to make decisions, and does so in isolation of the involvement of those who depend on the fishery. Although the abalone fishery is an extreme example of a high value fishery, embroiled in organised crime, it brings to light key drivers of compliance that need to be considered. All key informants in the research clearly stated the missed opportunity in the late 1990s for government to engage with both formal and informal fishers, a time when the future of the fishery could have taken a radically different turn. Although impossible to predict, the approach by fishers to explore alternative management strategies during that time clearly highlighted the need to embrace a wide diversity of factors that were influencing the fishery.

A key factor in the evolution of this fishery has been the perceived illegitimacy of MCM, and its decisions. As a result, the formal fishery has not been effectively managed while the informal fishery has not been effectively recognised, resulting in inappropriate strategies to address non-compliance. Key to this has been the reluctance on the side of MCM to engage and understand the informal traditional fishers as a legitimate stakeholder group. As a result, both the formal and informal fishers have been alienated from management, with incentives to comply consistently eroded over time. This chaotic state of affairs has led to the autocratic decision to close the fishery, despite historical claims to the abalone resource and legitimate livelihoods.

CHAPTER SIX

THE WEST COAST ROCK LOBSTER FISHERY: THE LEGITIMACY OF CUSTOMARY USE RIGHTS IN HANGBERG

1. INTRODUCTION

West Coast Rock Lobster (WCRL) is one of four lobster species in South Africa, and one of two commercial species. The WCRL fishery targets the species *Jasus lalandii*, which is distributed close to shore (<200m depth) and was historically located largely on the west coast (from Namibia to the Cape of Good Hope – see Figure 6.1). Commercial exploitation began in 1875 with the establishment of a Cape Town processing factory, but archaeological evidence suggests that there is a long history of resource use dating back to pre-Colonial times (Melville-Smith and van Sittert 2005). While the European export market began to develop in the late 1800s, rock lobster was locally considered 'a food for the poor', and was an important source of protein for poor coastal communities (van Sittert 1994, Melville-Smith and van Sittert 2005). Further, WCRL was used as bait for other fishing activities and was thus harvested prolifically. A high local demand for WCRL, for both consumption and bait, led to a thriving customary, or traditional, fishery (van Sittert 1994).

Figure 6.1: The historical distribution of the WCRL (*Jasus lalandii)* fishery in South Africa, prior to the southerly migration of the species in the early 1990s (adapted from Johnston and Butterworth 2005)

The growing export trade, however, led to increased pressure on the resource with catches peaking in the 1950s, but witnessing overall declines in catch rates and Total Allowable Catches (TACs) since the 1960s. The WCRL resource is now said to be 'heavily depleted' (Sauer *et al.* 2003). This is largely attributed to the unsustainable catches in the first half of the 20th Century, coupled with a significant reduction in the growth rate of lobsters since the late 1980s, high levels of non-compliance and changes in the distribution of the resource (Cockroft 2007, Cockroft *et al.* 2008, Cockroft and Payne 1999, Sauer *et al.* 2003). Concern for the resource led to a state-driven stock rebuilding strategy in the mid-1990s and an operational management procedure (OMP) was implemented from 1997 (Johnston and Butterworth 2005).

However, ongoing political pressure to transform the WCRL fishery, in line with the objectives of the Marine Living Resources Act (MLRA of 1998), has contributed to the instability and insecurity in the formal fishery at the same time as facilitating a thriving informal trade. Although the informal lobster fishery has yet to reach the sophistication and size of the informal abalone fishery, it is an organised fishery

estimated to harvest about 500t per year (Branch *et al.* 2007), which was approximately 22% of the commercial TAC for the 2007/2008 season. With concerns over the sustainability of the resource, and annual cuts in the commercial TAC since 2005, the sentiment is that a crisis is looming.

The WCRL fishery is an important small-scale fishery in South Africa. It is considered a 'high value' resource (Cockroft *et al.* 2002, Shannon *et al.* 2006), which has obvious implications in terms of economic development and livelihoods for coastal communities, but it also has important customary value due to historical resource use. Thus, this case study clearly highlights the complexity of managing a small-scale fishery in which economic incentives to harvest the resource are high, historical rights of access are legitimate and formal access rights are limited. In terms of compliance, this is a fishery that has a growing informal trade, exacerbated by government's failed attempts to collaborate fairly with the different fisher groups. Furthermore, the collapse of the commercial abalone fishery has resulted in more fishers turning to the rock lobster resource as a viable source of income. Now at a critical turning point, an understanding of the overall fishery is necessary to thwart the same fate that befell the abalone fishery.

This chapter will provide an overview of the WCRL fishery system, including a description of the natural characteristics, socio-economic conditions and management arrangements that are operating within the fishery as a whole. A review of the literature, as well as interviews with key informants, provided important information and insight into some of the broader issues in the fishery. More specific data, related to the WCRL informal fishery, and the factors that influence compliance, were explored through in-depth fieldwork in the coastal community of Hangberg. Figure 6.2 highlights the location of Hangberg, which is a traditional fishing community located in the greater Cape Town area. Considered a 'hot spot' for lobster 'poaching' (Branch *et al.* 2007), this case study provided rich information related to the socio-economic, political, cultural and institutional factors that influence fisher behaviour. This detailed information will be drawn on throughout the chapter to contribute to the description of the fishery. The discussion will then highlight the key factors influencing compliance behaviour in the WCRL fishery, focussing on both the

broader aspects of the fishery as well as specific issues identified through the Hangberg case study site.

Figure 6.2: Map highlighting location of case study site of Hangberg

2. THE NATURAL SYSTEM

The WCRL resource is considered to be under extreme pressure (Cockroft 2007), particularly relative to historical catch rates. The fishery peaked in the early 1950s, with catch rates reaching almost 17 000t (Melville-Smith and van Sittert 2005). With catches over the past two decades only reaching 10-15% of these peak historical landings (see Figure 6.3), scientists are debating the possible causes for these declines. In addition to assumptions of over-exploitation and high levels of non-compliance (Branch *et al.* 2007, Melville-Smith and van Sittert 2005, Shannon *et al.* 2006), there are a number of ecological issues impacting on the resource.

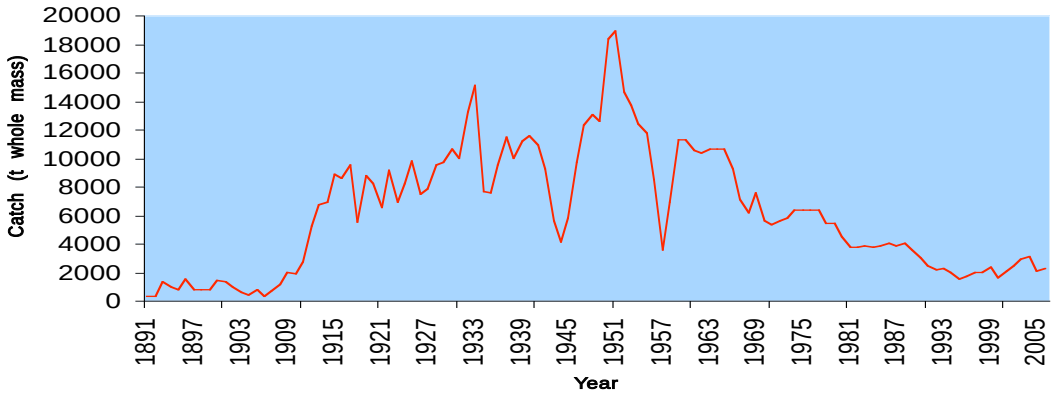


Figure 6.3: WCRL landings per year up to 2006 (DEAT 2008b)

Due to steady declines in catch rates, a TAC was introduced in 1983 and levels of harvesting in the 1980s became sustainable at around 3500-4000t, with scientists arguing that 'management measures in place at the time were therefore quite obviously adequate and the approach to management seemingly successful' (Cockroft and Payne 1999: 590). However, after 1989, the stability in the fishery ended, largely attributed to significant declines in growth rates, but also affected by the red tides. Red tides on the west coast have resulted in mass 'walkouts' of lobster due to low-oxygen water conditions and/or harmful algal blooms, which have led to mass lobster mortalities (Shannon *et al.* 2006). Examples include 60t of lobster being washed ashore in 1994 and a staggering 2000t stranded in 1997 (Cockroft and Payne 1999). The decrease in resource productivity is argued to be a result of some large scale environmental change (Shannon *et al.* 2006), which also likely led to decreased catches.

Another significant ecological change impacting on the WCRL fishery is the southward shift in distribution of the resource. Since the early 1990s, there has been an unprecedented migration of lobsters from the west coast to the south coast, which has led to the introduction of a new commercial fishery East of Cape Hangklip (Zone G) in 2003. Figure 6.4 highlights the change in lobster landings between the different zones over time. The major shift that took place in the resource is evident when one compares the contribution of the different regions to commercial landings from the late-1980s/early-1990s to 2000, the beginning of relative stability: 'the contribution of

the west coast region to total lobster landings declined from about 60% to <10%, whereas that of the southern region increased from around 18% to around 60% over that period' (Cockroft *et al.* 2008: 151).

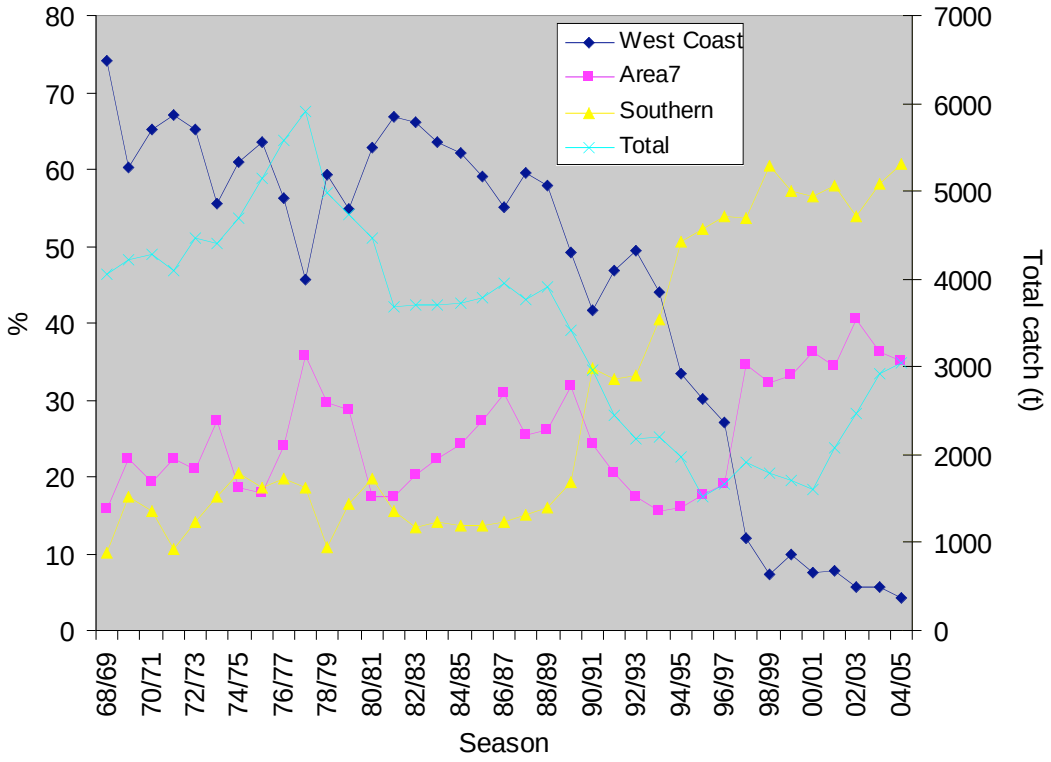


Figure 6.4: Percentage contribution of the West Coast, Area 7 and the southern coast to the total WCRL landings (Cockroft *et al.* 2008)

The changes in zonal catch rates can be attributed to a gradual shift of WCRL from their traditional west coast areas to a more south-easterly distribution (Cockroft *et al.* 2008, Shannon *et al.* 2006). The reasons for this shift are largely unknown, but are thought to be due to environmental factors (such as climate change) rather than fishing effort (Shannon *et al.* 2006). This shift has also had important socio-economic impacts (Cockroft *et al.* 2008), such as the closure of a WCRL processing factory in the west coast community of Doringbaai in 2006, resulting in significant job losses (Sowman *et al.* 2008), while a nearshore fishery East of Hangklip on the south coast was introduced in 2003, leading to 274 new rightsholders (230t) (DEAT 2004a, Shannon *et al.* 2006). The southerly shift in WCRL has also had a significant ecological impact whereby lobsters are moving into historically rich abalone areas (Cockroft *et al.* 2008). This has resulted in a dramatic decrease in abalone abundance

due to lobster predation on sea urchins. Sea urchins provide an important refuge to juvenile abalone, and the influx of lobster has led to the virtual disappearance of sea urchins, which in turn has negatively affected abalone recruitment (Tarr *et al.* 1996, Tarr 2000).

The future of the WCRL fishery is considered uncertain (Melville-Smith and van Sittert 2005). Since the 1990s, catch rates and TACs fluctuated, with a perceived recovery in the fishery in 2004, when the TAC increased to 3527t (DEAT 2005). However, the resource has shown signs of decline, which has resulted in three annual reductions in the commercial TAC since long-term rights were allocated in 2005. The result is a commercial TAC of 2571t for the 2007/8 season (WCRL Association 2008a). These reductions, coupled with political decision-making in 2007 to broaden small-scale access to the WCRL resource (through poverty relief permits), have contributed to instability in the formal fishery. These socio-economic and institutional issues will be discussed further below, but need to be understood within this context of resource decline.

3. THE SOCIO-ECONOMIC SYSTEM

This section will provide an overview of the socio-economic dimensions of the WCRL fishery in South Africa, including the formal and informal fisheries. Although there is limited socio-economic data on the fishery as a whole, extensive primary data on the Hangberg case study was gathered to gain insight on the factors influencing compliance behaviour. This discussion will be embedded in an important historical context, which emanates from the rich material compiled by van Sittert (1993, 1994, 2001).

3.1 The South African WCRL Fishery

The WCRL fishery, as with other small-scale fisheries in South Africa, consists of both a formal and informal fishery. Although the informal fishery has grown over the past decade, it has not reached the level of sophistication of the abalone fishery in terms of organisation and size. Research indicates that there is overlap and interaction

between the formal and informal WCRL fisheries (see Figure 6.5). The extent of this overlap is uncertain, but both fisheries operate simultaneously, sometimes in cooperation. The estimates of the size of the informal sector, in terms of harvesting levels, are less than the abalone fishery. In the WCRL fishery it was estimated that the informal catch was 22% (500t) that of the 2007/8 commercial TAC (2314t). Although still a significant informal fishery, its size is smaller than the formal fishery, as opposed to the situation in the abalone fishery, where the informal fishery is much larger.

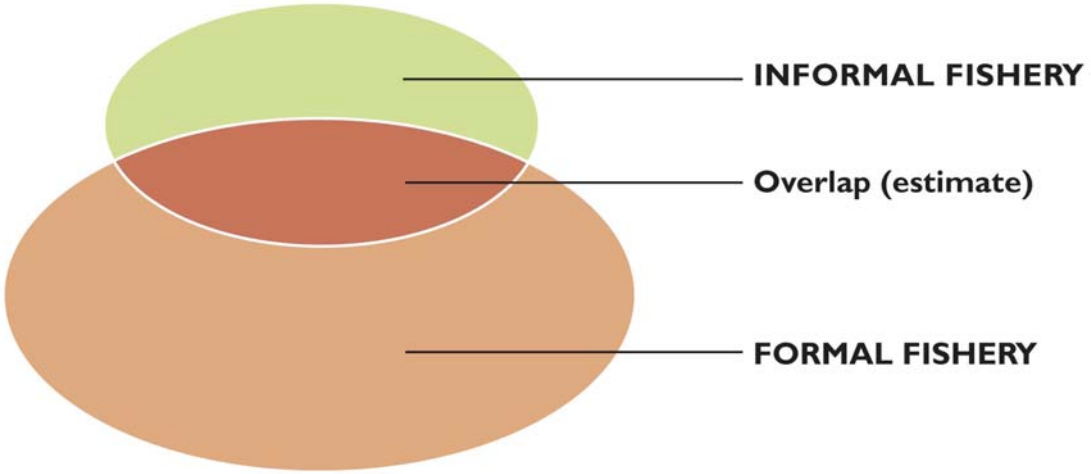
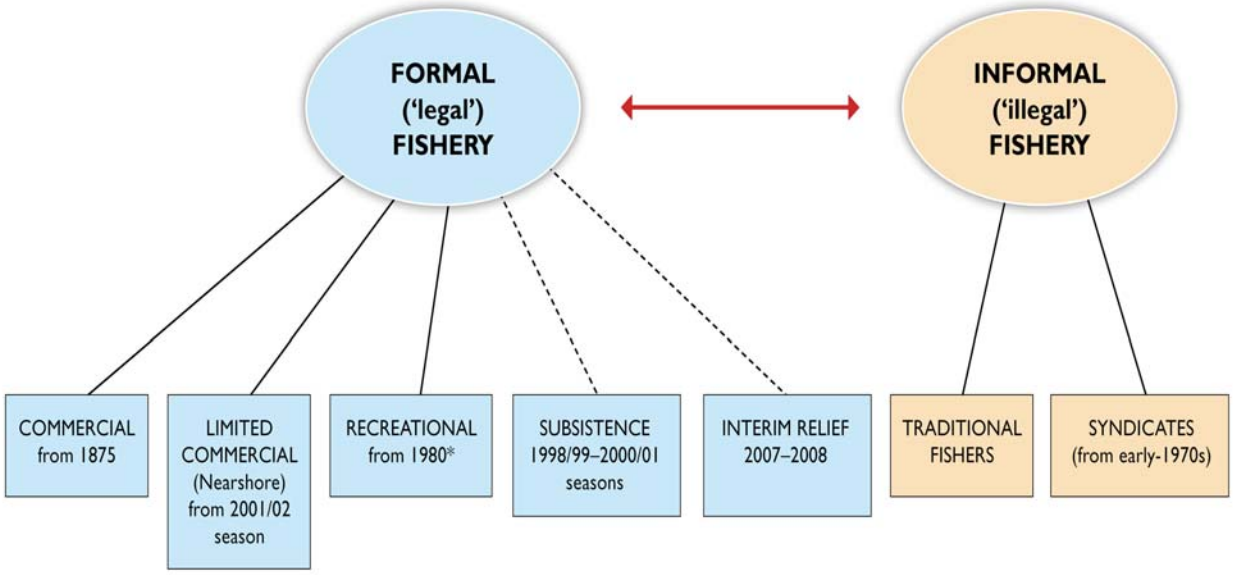


Figure 6.5: Composition of the South African WCRL fishery – highlighting the overlap between the formal and informal fisheries

Harvesting of WCRL has existed for centuries with strong customary use rights evolving from the 19th Century (van Sittert 1993, 1994). Commercial exploitation began in 1875, with an established export market by the early 1920s (van Sittert 1993). With an industry-state export orientation in the early 1900s, which favoured the economic interests of big capital, regulations were increasingly put in place to limit public access to the lobster resource (van Sittert 1994). Although a more detailed historical perspective will be provided in Sections 3.2 and 3.3.2 below, it is important to highlight here that an informal (i.e. 'illegal') WCRL fishery emerged as traditional fishing practices became restricted through exclusionary laws that favoured the formal export industry.

Figure 6.6 outlines the different sectors that have been operating in the formal and informal fisheries. These sectors have changed over time, largely in response to state policies and laws that have either restricted customary practices, or have attempted to

'reform' the fishery in response to political change. Prior to the MLRA (1998), the formal fishery had only included the commercial and recreational sectors. However, in order to broaden access to the fishery, the limited commercial, subsistence and Interim Relief fisheries were introduced. However, as can be seen from the figure, the latter two are no longer allocated rights, with the Interim Relief permit being legally challenged by the WCRL Association in 2008. The informal fishery, on the other hand, consists of traditional fishers who continue to fish despite increased state regulations that emanated from the early 1900s. In addition, a more organised group of opportunists became involved, who saw the growing local lobster trade as a viable source of income (van Sittert 1994). Each of these sectors operating in the formal and informal fisheries will be discussed in more detail in the sections below.



*Although recreational permits were required from 1980, limitations on resource harvesting were in place from the 1960s, including daily bag limits, closed season and restrictions on sale (van Sittert 1994)

Figure 6.6: Sectors of the formal and informal WCRL fisheries. Dotted lines highlight those sectors that are no longer allocated rights.

3.2 The Formal WCRL Fishery

People living along South Africa's coast in the 19th and 20th Centuries harvested WCRL due to its easy accessibility for supplying food and bait (Melville-Smith and van Sittert 2005). Although commercial exploitation began in 1875, little attention was paid to the traditional fishery that was operating along the west coast. This is largely attributed to the perceived abundance of the resource and the fact that lobster was shunned by the middle class and considered a 'food for the poor' (Melville-Smith and van Sittert 2005, van Sittert 1994). As a result, the local market was ignored in the early half of the 1900s, while the focus of capitalist interest, and the state, was on the lucrative export trade. In fact, up until the 1920s, customary use rights were largely protected. Laws specifically permitted public access to lobster for bait and for food and this local fishery was exempt from catch restrictions that were established for the export industry (Melville-Smith and van Sittert 2005, van Sittert 1994).

However, due to resource declines and resultant quota cuts, the commercial industry pressured the state to impose restrictions on boat owners and the public in order to sustain the interests of the export economy (van Sittert 1993, 1994). Thus, the bait concession was withdrawn in 1920, lobster sanctuaries were introduced in 1927 and the 1960s saw an onslaught of laws aimed at curtailing public access to the resource. According to van Sittert (1994), these included limits on daily catch (1961), closed seasons (1961), prohibition of sales by the public (1961) and bans on certain landing sites (1964). Furthermore, in 1979, customary 'eetvis' was abolished, which further restricted traditional harvesting practices.

It is argued that behind all these 'preservationist' attempts to sustain the WCRL resource, these regulatory measures were in fact big industry's attempt to centralise production and minimise competition for the harvesting and export of lobster (van Sittert 1994). Although some initial attempts were made in the late 1900s to impose size limits and closed seasons on the commercial fishery, limited access was further imposed through an export quota in 1946, a marketing quota in 1969 and introduction of a TAC in 1983 (DEAT 2004a , Melville-Smith and van Sittert 2005, van Sittert 1993, 1994). Van Sittert (1994) explains that investigations into the quota system

were to be undertaken through the establishment of the Quota Board in 1987, but this was undermined by the fact that redistribution could only take place amongst existing quota holders. Pressure to reform the industry only emerged again with the unbanning of the ANC in 1990 (van Sittert 1994).

As with all other fisheries in South Africa, democratic fisheries legislation promulgated in 1998 (MLRA) led to significant changes in the allocation of access rights to marine resources (van Sittert *et al.* 2006). Whereas there were only 39 rightsholders in the WCRL fishery in 1992, there were 1019 rightsholders in 2005 (DEAT 2005). Following the long-term rights allocation process in 2005, the commercial fishery was divided into distinct offshore and nearshore sectors (Cockroft *et al.* 2008). As a result, in the 2007/08 season there were 1068 rightsholders in the fishery, consisting of large-scale offshore operators (23%, with allocations of more than 1.5t) and the limited commercial nearshore operators (77%, with allocations of less than 1.5t – WCRL Sea Management Association 2008b). Approximately 20% of the TAC is allocated to the nearshore fishery (560t in 2007/2008 season), which operates less than 30m from shore, and 80% to the offshore fishery (1754t in 2007/2008 season), which operates greater than 30m from shore (Shannon *et al.* 2006). These percentages are based on the location of the resource (ie: 20% of the resource is located nearshore and 80% of the resource is located offshore, according to DEAT 2005).

The WCRL fishery was divided into fishing zones in the early 1980s (Cockroft *et al.* 2008; see Figure 6.7), and these differ from the abalone zones. Rightsholders in the offshore sector harvest according to an inter-area schedule, while the nearshore rightsholders are required to harvest in the zone or area where they live (Cockroft *et al.* 2008). As mentioned previously, the historically rich WCRL areas were Zones A-D, but with the southward shift of the lobster, Zone F was opened for commercial exploitation in 2003.

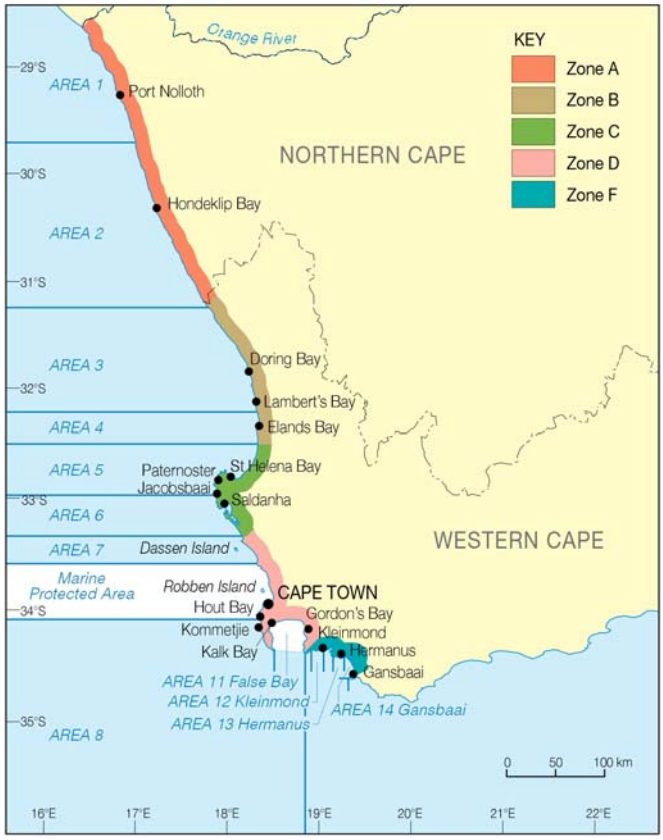


Figure 6.7: WCRL fishery zones and areas (adapted from Cockroft *et al.* 2008)

3.2.1 Harvesting and Production

Prior to the introduction of lobster traps in the 1960s, the commercial fishery was largely dependent on hoopnets for harvesting, which were most often deployed from small boats (rowing or with outboard motors) and mostly used at depths of less than 30 metres (DEAT 2005, Sauer *et al.* 2003). As a result of this basic equipment, most fishers harvested close to their homeport. However, with the introduction of larger vessels, it is now common to land lobsters at a number of different ports (Sauer *et al.* 2003). Also, as a means of increasing efficiency in deeper water, lobster traps are used and deployed only from inboard motor vessels. Traps are used exclusively by 74% of the rightsholders, with hoopnets only used by some of the small quota holders (allocations of less than 10t) (Sauer *et al.* 2003).

South Africa supplies less than 2% of the world's total lobster market, exporting largely to the United States, Europe and the Far East (Sauer *et al.* 2003). Lobster products include frozen tails, whole frozen, whole cooked and live lobsters, with sales

dependent on overseas market trends. The fishery is valued at approximately R260 million (approximately US$32.5 million; Cockroft *et al.* 2008), and is considered South Africa's third most valuable fishery in terms of landed value (Johnston and Butterworth 2005). Approximately 4000 people are employed by the fishery, including sea-going personnel and others working in processing and marketing operations (Cockroft *et al.* 2008). The WCRL fishery was traditionally an important source of seasonal employment for west coast communities, but job losses have resulted from the southerly migration of the resource (Cockroft *et al.* 2008).

3.2.2 Recreational Fishery

Recreational fishers have been required to obtain permits to harvest WCRL (with bag limits) since 1980 and it is estimated that, on average, approximately 50 000 permits are sold annually (DEAT 2008c). These fishers are required to use hoopnets from shore or small vessels and can dive, but without the use of artificial breathing apparatus. Other regulations include a minimum size length, fishing during certain times, and closed seasons. During the 1996/97 season, the recreational catch reached 500t (29.5% of the commercial catch), but measures were put in place, such as a reduced fishing season, to try to reduce these catches. The recreational TAC was set at 320t for the 2004/5 season, intended to be fixed as long as it stayed within 8-12% of the commercial TAC (Shannon *et al.* 2006). However, for the 2006/7 season the recreational TAC decreased, as it did again in 2008, now representing 10% of the commercial TAC at 257t (WCRL Association 2008a). The Minister of DEAT had also decreased the recreational fishing season in 2008, restricting fishing to weekends and public holidays (Government Gazette No. 30645). It has been argued that increased limitations on the recreational sector have provided a means with which to allocate some of the TAC to small-scale fishers for the Interim Relief Permit (discussed below; L55).

Although recreational fishers are not permitted to sell their catch, it is well known that this practice is common, particularly in impoverished coastal communities where the recreational permit is a means to secure a livelihood. Fishers explained that the recreational permit allowed them to be at sea with hoopnets, minimising their

confrontations with law enforcement and preventing a confiscation of their equipment (Fisher policy meeting in Kalk Bay 7 June 2007, L1, L3, L8).

3.2.3 Subsistence Fishery

Subsistence permits were allocated for three years from the 1998/1999 season to the 2000/2001 season. Although permit numbers have not been verified for the earlier years, 1700 permits were issued in 2000 (with a TAC of 230t; Sauer *et al.* 2003). Subsistence fishers were required to operate with hoopnets only, from shore or from small boats. Daily limits of four lobster were eligible to be sold to restaurants, individuals, fish shops and processing factories, but as with the abalone fishery, there were concerns of increased black market sales. From 2001, following the recommendation of the Subsistence Fisheries Task Group, the subsistence permits were transformed into small-scale quotas under a newly created limited commercial sector.

3.2.4 Limited Commercial Fishery

In 2001, the TAC allocation for subsistence permits was changed to a limited commercial quota as a means of providing legitimate access to impoverished fishers (DEAT 2002). In 2001, 511 fishers were allocated limited commercial rights for four years with a further 274 limited commercial rights allocated in 2003 in the newly opened fishing grounds east of Cape Hangklip (Zone F, DEAT 2004a). The TAC allocations in this sector ranged from 200 kilograms to 1.5t, with an average of 712kg per fisher (DEAT 2004a). Considered the 'nearshore sector' by MCM, rights allocations could not be more than 1.5t and fishers were required to use hoopnets and were not permitted to harvest between fishing zones (DEAT 2005). However, there were still many fishers who were excluded from the fishery. In 2001, there were 1959 applications for WCRL rights and as stated above, only 511 applicants were successful in that year for limited commercial rights, and 189 were successful for full commercial rights (DEAT 2002) – resulting in over 1200 (64%) unsuccessful applicants. Further, for the long-term rights allocation process, there were 4 070 applications for the limited commercial, or 'nearshore' sector, of which 812 were

granted rights, resulting in only 20% of applicants receiving formal access to the resource (Cockroft *et al.* 2008).

3.2.5 Interim Relief Permits

The ongoing exclusion of traditional fishers from the formal fishery led to legal action, which was supported by the Human Rights Commission. The rationale for this case was briefly outlined in Chapter Four. The fishers challenged the Minister of the Department of Environmental Affairs and Tourism (DEAT), and demanded that their traditional rights of access to marine resources be restored. An out of court settlement was reached in May 2007, which required the Minister to initiate a new policy process to develop a small-scale fisheries policy for South Africa, and to establish 'interim relief' for traditional fishers who had been excluded from formal access rights. A key component of this Interim Relief Permit was an allowance of up to 20 lobsters per week during May 2007. A second phase of the Interim Relief Permits was then implemented from 15 November 2007 to 15 April 2008[10]. It was stipulated at the outset that 1000 permits would be allocated to fishers on the west and south coasts, but in reality 1230 permits were allocated. Although short-lived, these permits were fraught with difficulties, including court action by the commercial WCRL fishery to prevent the permits from being issued (WCRL Association and others vs. Minister of DEAT and others). This latest development has highlighted the ongoing challenges and conflicts that exist in relation to establishing formal access to small-scale fisheries.

3.3 The Informal Fishery

The history of the informal WCRL fishery is well documented by van Sittert (1993, 1994) from the late 1800s to early 1990s. He describes the development of a traditional fishery that was immersed in the social, cultural and political context of coastal communities and was significantly affected by the export-oriented focus of the commercial industry. With increased government restrictions on access to the WCRL

[10] Although these were the dates stipulated for the second phase of the Interim Relief Permits, no permits were issued prior to 21 January 2008 (J. Sunde, Masifundise, *in litt*).

resource from the early to mid-1900s, customary fishing practices became severely limited. Nevertheless, traditional fishing continued as a means to supply food, and later a source of income on the black market (van Sittert 1994). The informal fishery continued to thrive, particularly in the midst of increasing local demand and price in the 1950s (Melville-Smith and van Sittert 2005). The combined impact of the state's 'war on poaching' in the mid-1960s, through focussed law enforcement efforts, and the industry's attempts to entrench its exclusive access to the resource, resulted in the informal trade being driven underground (van Sittert 1994). This, coupled with a growing domestic market, led to a more organised informal fishery from the 1970s.

Although estimates of the size of the informal fishery are difficult to quantify, scientists estimate that at least 500t of WCRL are being harvested through the informal trade (Branch *et al.* 2007, L52). Small-scale fishers argue, however, that the informal trade will continue to grow in size and sophistication as a result of the exclusion to formal access rights (L23 – focus group; L2, L8, L12, L18). Informal fishers explain that market opportunities are growing due to increased local demand, emergent networks to the export market and close ties to the formal fishery (L4, L13). The informal fishery will be described in more detail below, including the different sectors that are operating and the scale with which they are harvesting and trading in lobster.

3.3.1 Harvesting and Production

3.3.1.1 The Market

As discussed above, despite restrictions on harvesting, local demand for WCRL created a substantial local market that grew over time. This was facilitated by the Crawfish Export Act of 1940, which focussed on securing the international export market. Thus, 'the Act's exclusive export orientation…left the way open for customary use rights and the illegal trade to survive on the *unregulated domestic market*' (van Sittert 1994: 14, italics added). During this time, domestic demand for WCRL was considered insignificant by both industry and the state and was largely disregarded (Melville-Smith and van Sittert 2005, van Sittert 1994).

However, while the resource declined in the 1960s, the domestic demand for lobster increased, largely attributed to increased white affluence, and the formal fishery began supplying the local market for the first time in 1961 (van Sittert 1994). Informal trade flourished in the 1970s with an 'unsatisfied domestic demand', created by the monopolisation of the export industry, coupled with price inflation and a weakening rand (van Sittert 1994: 33). The impact of this local market on the informal fishery was also recognised by a government appointed Commission of Inquiry (Treurnicht Commission 1980). It stated that the growing black market was largely due to industry monopolisation and its failure to supply reasonably priced lobster to the local market: '

> 'In those instances where rock lobster can be obtained, exorbitant prices are demanded and it is offered only in packings too large for the general public. These complaints are endorsed most strongly by the hotel and restaurant trade. The Commission believes that the illegal catching of rock lobster and the flourishing black market developed mainly as a result of the fact that members of the general public were unable to obtain reasonable quantities of rock lobster at reasonable prices' (Treurnicht Commission 1980: 26-27).

The informal trade continued to grow as economic conditions on the west coast became dire and alternative economic opportunities were scarce. Thus, opportunities to supply the local and export markets were exploited by informal fishers, who were increasingly regulated by government, and who had few other livelihood options (van Sittert 1994). This situation appears to have changed very little since the MLRA in 1998, as many traditional fishers remain excluded from the formal fishery, and have few alternative economic opportunities (Cardoso *et al.* 2005, Isaacs 2003, Sowman *et al.* 2008). Thus, a strong local demand for lobster by the catering industry, restaurants and wine farms provides an ongoing market for fishers who rely on the informal fishery to contribute to their household's income.

3.3.1.2 Production

The *modus operandi* of the informal WCRL fishery varies depending on gear, level of organisation and focus of trade (local or global). There are four modes of operation that exist in the informal fishery: handline fishers, divers, rowboats and motorised boats. The latter largely compose of fishers who are trading on the black market through recreational or commercial rights, while the other operations involve fishers who do not have formal rights and do not have the financial means to purchase large boats and motors. A general understanding of the informal fishery has been sought, but detailed information has been gathered through the Hangberg case study.

Handline fishing is considered a traditional practice or 'skill', whereby a simple fishing line is wound around a plastic or wooden rim and held with bare hands. One handline fisher explained that the 'communication between you and the crayfish is between your two fingers' (L1). Once a tug is felt at the end of the line, the fisher carefully pulls the lobster up by hand and places it in a bag. Due to the level of skill involved, catches are often low, and highly dependent on weather and sea conditions. Handline fishers operate largely from shore as individuals or as loosely defined groups. Due to the unpredictable nature of their catches, they have an ad hoc market and will sell to local buyers or restaurants with the best price.

WCRL divers, on the other hand, are more sophisticated in their approach and many have had links to the informal abalone trade. They largely dive as individuals, with wetsuits and snorkel gear, tying bags to their belts and filling them with lobster. They then have one or two assistants on shore who retrieve their bag and carry it to a designated location. Interestingly, in the Hangberg case study, all of the divers who were interviewed considered themselves 'abalone divers', but with a scarce abalone resource, were utilising their skills to harvest lobster. Divers are capable of harvesting large quantities (40kg per day in some cases), but they are highly reliant on the weather. Most divers sell to middlemen in their local communities.

Outside of the formal fishery, most fishers harvest lobster through the use of rudimentary row boats, mostly without a motor. These fishers generally operate in

groups, or crews, organised by the boat owner, and use hoopnets to harvest the lobster. Figure 6.8 illustrates the *modus operandi* of this operation as it exists in Hangberg. Other traditional fishing communities also operate informal rowboat fisheries, which emanate from historical practices. Key to this harvesting strategy is the level of organisation, in which roles and responsibilities are allocated to different crew members and profit distribution is agreed upon in advance (Omari 2006). In Hangberg, this fishery involved the largest number of fishers with the highest catches. There were 10-12 groups operating, with about eight of these groups constant over many years. New groups emerge, sometimes breaking away from existing groups, but this is often dependent on the availability of other forms of employment.

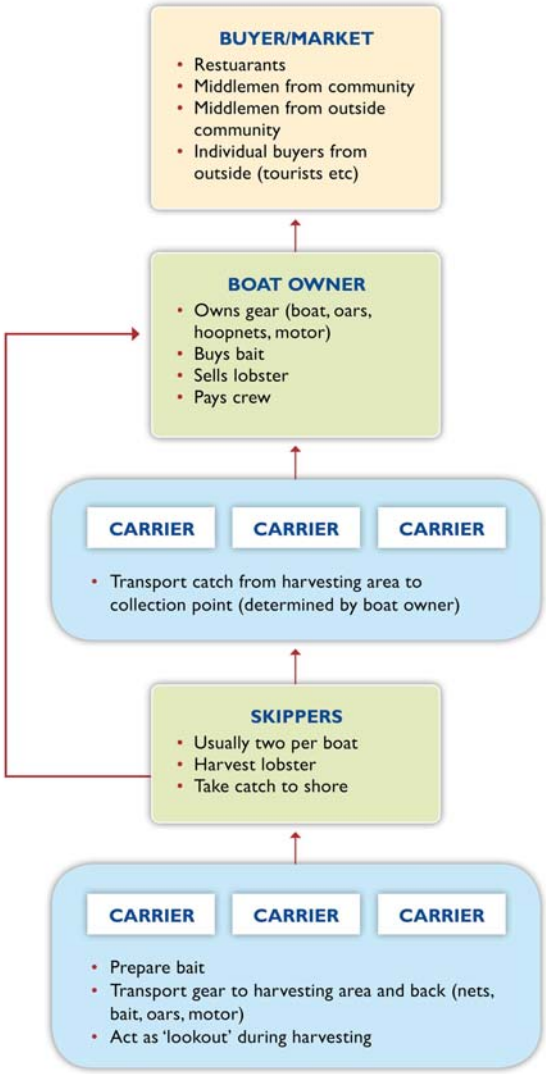


Figure 6.8: *Modus operandi* of the WCRL informal fishery in the Hangberg community

The fishers involved in the operations described above largely harvest outside of the formal fishery, although during the lobster season, many fishers will purchase a recreational permit in order to legitimise their presence at sea. Most of these informal operations supply the domestic market, with varying degrees of organisation dependent on their ability to provide reliable catches. A significant outcome of the Hangberg case study was the realisation of the entrenched nature of the informal fishery, which is a well functioning system embedded in historical fishing practices. Thus, despite the fact that the fishery is considered illegal by both the state and big industry, it continues to operate with very little conflict at local level. Although the fishery is open access, in that there are no apparent restrictions on who can harvest lobster, some fishers expressed concern that more people were getting involved that did not have a historical link to fishing (L1, L8, L11). This raised issues of 'who should gain access', but most agreed that if there are no alternatives, people have a right to turn to the sea (L4, L7, L14, L21).

Formal fishers supply the informal trade by using their commercial quotas to over-harvest and conceal extra catch (L32, L34, L39). Hoopnets or diving gear are often used, but reports have indicated that undersized lobster from the commercial traps are also traded. Middlemen will arrange pickup, either at sea (through boat transfers) or at landing. The relationship between the formal and informal fisheries will be further discussed in Section 3.3.4 below.

3.3.2 Traditional Fishers in the Informal Fishery

The long tradition of WCRL harvesting on South Africa's coast has been well documented, as has the historical marginalisation of this sector (van Sittert 1993, 1994). Although various fisheries 'reforms' in South Africa have attempted to broaden access rights to traditional fishers, these processes have largely resulted in the status quo, with the monopolisation of rights in the hands of big capital (Croeser *et al.* 2006, Isaacs *et al.* 2007, van Sittert *et al.* 2006). Disenchanted with government for decades, impoverished fishers, with formal rights or not, have continued to turn to the sea for what they consider a legitimate livelihood.

In the case of Hangberg, all of the informal boat owners shared stories of growing up on their father's fishing boats. Unsustained employment and unsuccessful quota applications have led fishers in Hangberg to 'go back to what we know' (L8). One informal fisher, whose quota application had been denied on many occasions explained: 'it is the government who has made us illegal. We have been fishing [lobster] all our lives and it is their problem that they see it is as a crime. We just see it as a way to make a living. They will never stop us unless they give us what is rightfully ours' (L13). This sentiment was reiterated by other lobster fishers operating along the coast, arguing that it is government that have turned them into 'poachers' by denying them access to their traditional fishery (Branch *et al.* 2007).

As van Sittert (1994) explains, despite considerable policing efforts in the 1970s to enforce new laws, fishers continued to harvest the resource, particularly in areas where poverty was rife and WCRL was a key source of food and/or income:

> 'Either eaten as food or retailed through informal distribution networks for cash and kind, crayfish [lobster] in a myriad illegal forms was covertly removed from the sea, sanctuaries and industry vessels over and above the customary 'eetvis' allowed fishermen…with little alternative employment and a small, industry controlled local economy, most illegal crayfish fishing was for the pot' (p. 45-46).

The socio-economic circumstances of small-scale fishers were exacerbated by the established monopoly in the WCRL fishery, which had 'enslaved' the traditional fishers through labour (van Sittert 1985). This was accomplished through fishers being required to sell their catch to the companies at a pre-arranged price from the 1940s and again from the 1970s, as well as through the free housing scheme that was initiated at the outset of the industry. Thus, as van Sittert (1985) argues, 'instead of company profits being used to alleviate labour's poverty, they were directly dependent on labour's continued poverty and super exploitation by capital. The provision of free housing for fishermen thus reinforced rather undermined the poverty and misery of pre-war years' (p. 19).

Further, in the 1970s, when the WCRL season had shrunk to only three to four months, commercial fishers were compelled to enter the informal fishery as there was

an 'absence of alternative employment in order to survive' (van Sittert 1994: 36-37). Similar circumstances are still evident in coastal communities, whereby seasonal employment, few economic alternatives and fragile livelihoods, continue to drive fishers to the informal WCRL fishery (Cardoso *et al.* 2005, Masifundise 2003, Sowman *et al.* 2008, L23 – focus group).

The fragile socio-economic circumstances of fisher communities is highlighted through the Hangberg case study site, which has been identified as a highly marginalised area. In the 1950s, fishers in this area were provided council flats, which became overcrowded when the fishing industry boomed in the 1970s. This overcrowding led to the development of informal housing behind the flats, which remains today. There is a lack of basic services in Hangberg with only 37% of households having toilets inside their home, while 35% use communal toilets, and about 10% still use a bucket system (Kapembe *et al.* 2007). Monthly household income in the Hangberg informal settlement is R2600, lower than the South African average of R3 083 and significantly lower than the Western Cape average of R6 250 (Kapembe *et al.* 2007). Further, it has been recognised that with increased limitations on access to marine resources, there are few livelihood opportunities in the area (Hartnack 2008). Thus, high levels of poverty, and few economic alternatives, have significantly influenced fishers' involvement in the informal fishery – now and in the past.

3.3.3 Syndicates in the Informal Fishery

Organised groups of opportunists have been operating in the WCRL informal fishery from the 1970s as a means to supply an increasing local demand (van Sittert 1994). These were people with business interests, many of whom did not fish themselves, but provided transportation, storage and distribution of WCRL across South Africa. In addition, recreational fishers became increasingly more sophisticated with the use of diving gear and ski-boats, supplying local middlemen and using the money to supplement other forms of income (van Sittert 1994).

Formal networks began to develop between individuals, groups and middlemen in order to ensure a regular and sufficient supply to the black market (van Sittert 1994). Informal fishing therefore developed as a source of seasonal or full time employment in Cape Town and along the west coast. Networks became highly organised and also involved in other illicit activities. In Hangberg, for example, some middlemen are also 'drug merchants' and the lobster trade is simply another mechanism to make money. As one fisher explained: '[the buyer] is also a drug merchant. It is like any other business – you poach to get into other things…he poaches to help his drug trade' (L1).

Although law enforcement authorities had linked Chinese Triads to the WCRL trade in the mid-1990s, the focus of international syndicates has largely been on abalone (PICOC 1998). Nevertheless, the quantities of lobster harvested in the 1990s was high, with one key middleman on the south coast receiving about 1500 lobster per day (PICOC 1998). Prices then were R2.50 per tail and R6.00 for a whole lobster. In 2007, informal fishers in Hangberg were receiving approximately R10.00 per tail and R25.00 per lobster. Later that year, lobster began to sell per kilogram, ranging from R50.00-60.00 per kilogram. If there is a middleman, he will increase this price to at least R80 per kilogram to an end buyer (such as a restaurant).

Discussions with various stakeholders, however, indicate that the most organised aspects of the informal fishery are linked to the commercial industry (L32, L39). The quantities and price for WCRL are significantly higher when export markets are targeted, which are easily accessible through established exporters. Some law enforcement authorities indicated that commercial factories were being utilised to pack and export informally harvested lobster (L32, L34) and this was also mentioned by others (L2, L15, L48). A highly publicised case in 2002 implicated 21 commercial fishing boats for harvesting ten times their allocated quotas for WCRL (Le May 2002). This lobster was sold to Hout Bay Fishing, an established company, which had later been found guilty of large-scale over-harvesting and illegal trade of other marine species (Hauck and Kroese 2006). Thus, in addition to the traditionally-based informal fishery for the local market, more organised syndicates are operating for both the domestic and international markets.

3.3.4 Overlap between Formal and Informal Fisheries

The symbiotic relationship between the formal and informal fisheries has existed from the early 1900s, when attempts were first made to regulate the WCRL fishery (van Sittert 1994). In a highly competitive environment, industry turned to the black market as a means of subsidising its income. Thus, traditional fishers, who were increasingly being restricted by government since the 1920s, continued to fish by supplying the domestic market through their own networks as well as the formal fishery for export. Van Sittert states:

> 'by far the biggest market for illegal crayfish… was the canning and freezing industry which encouraged the catching on undersized, berry and poached crayfish by both omission and design. Natural and legal constraints on secondary production compounded by competition between companies for labour, raw material and market share made the illegal trade an integral and indistinguishable facet of legal factory production in both boom and bust cycles' (van Sittert 1994: 14).

Examples of industry buying from the black market are given throughout the 1900s, with informal lobster being exported in the 1980s through formal channels (van Sittert 1994). The Hout Bay Fishing case, as mentioned above, indicates that such relationships are continuing to operate in the 2000s. In addition to informal trade being channelled through commercial export, formal fishers are also selling their catch for the informal market. For example, fieldwork in Hangberg has indicated that strong cooperation exists between the formal and informal fishers. The most frequent stories related to undersized catch being sold by the industry vessels to the black market and sold for tails (L4, L13, L18, L48). The most interesting story, however, had links to management decision-making. A main middleman in Hangberg told how quota holders had approached him at the end of the WCRL season to buy black market lobster. He explained: 'MCM screwed up with permits – the permits might only be issued at the end of the season when the guys don't have enough time to catch their quota. They don't want to be seen by MCM to be under-catching, so they come to me to fill their quota. I end up selling the quota holders poached lobster!'. The

quota holders therefore sell the lobster to factories and this is calculated against their quota allocation.

There are also allegations by the larger companies that the limited commercial quota holders – or inshore fishers – are catching 'illegally' because their quotas are not economically viable (L41, L43). Recent cuts in the TAC, coupled with increased fuel costs, crew and other materials, have significantly impacted on income. Thus, with readily available local markets, the opportunities exist for black market trade. One boat owner in Hangberg explained that 'when times were tough', a local quota holder would contact him and he would take his rowboat out to sea to pick up tails from undersized lobster (L4). They both benefit – they 'help each other out'. Another informal fisher in Hangberg explained that he had contact with a commercial vessel that would request lobster from him. They then had an arrangement where he would transport the lobster to him on the sea, and the commercial fishers would transport the lobster to a 'Chinese boat'. He said the prices were very high, but it didn't happen very often (L18). The situation is exacerbated for the formal fishers by the fact that the lobster fishery is seasonal and rightsholders are limited from accessing other fishing rights (such as linefish), which historically provided diverse livelihood options for the entire year.

Evident from this discussion of the informal fishery is the recognition that the informal trade operates at different scales, in terms of harvesting, production and markets. There remain many small-scale traditional fishers operating along the coast, who rely on the informal fishery as an important source of food and/or income. In addition, however, are the opportunists that range from recreational fishers to highly industrialised commercial companies, which are attracted to the economic benefits associated with the informal trade.

4. THE MANAGEMENT SYSTEM

The section below will highlight the key management strategies and approaches that have been implemented in the WCRL fishery. Although reference will be made to van Sittert's (1993, 1994) historical research, emphasis will be placed on those

strategies that have been developed and implemented since the promulgation of the MLRA. There have been a number of difficulties in trying to incorporate the social, political and economic dynamics into fisheries management, particularly due to the resource-oriented approach that has dominated decision-making. Scientists themselves have acknowledged that they 'are united in promoting [resource] sustainability as the over-riding objective' (Cockroft and Payne 1999: 599). Thus, although there were genuine government attempts to broaden WCRL fishing rights, to enhance consultation with stakeholders and to improve enforcement, many challenges have remained. These will be discussed in greater detail below, in addition to the implementation of a Marine Protected Area (MPA), which raises particular issues in relation to the case study site of Hangberg.

4.1 Broadening Rights of Access to the WCRL Fishery

As with the abalone fishery, rights of access to the WCRL fishery have been broadened since the promulgation of the MLRA in 1998, particularly to small-scale fishers. As compared to 39 rightsholders in 1992, there were 1019 rightsholders in 2005, with 785 of these rights allocated to small-scale fishers (DEAT 2005). With the introduction of the limited commercial sector, 91.5% of these rightsholders were from previously disadvantaged backgrounds (DEAT 2004a). As a means of accommodating this increased number of rightsholders, the average allocation in 2002 was 6.8t as compared to the average of 56t in 1992. The redistribution of rights to different sectors in the formal fishery is depicted in Table 6.1.

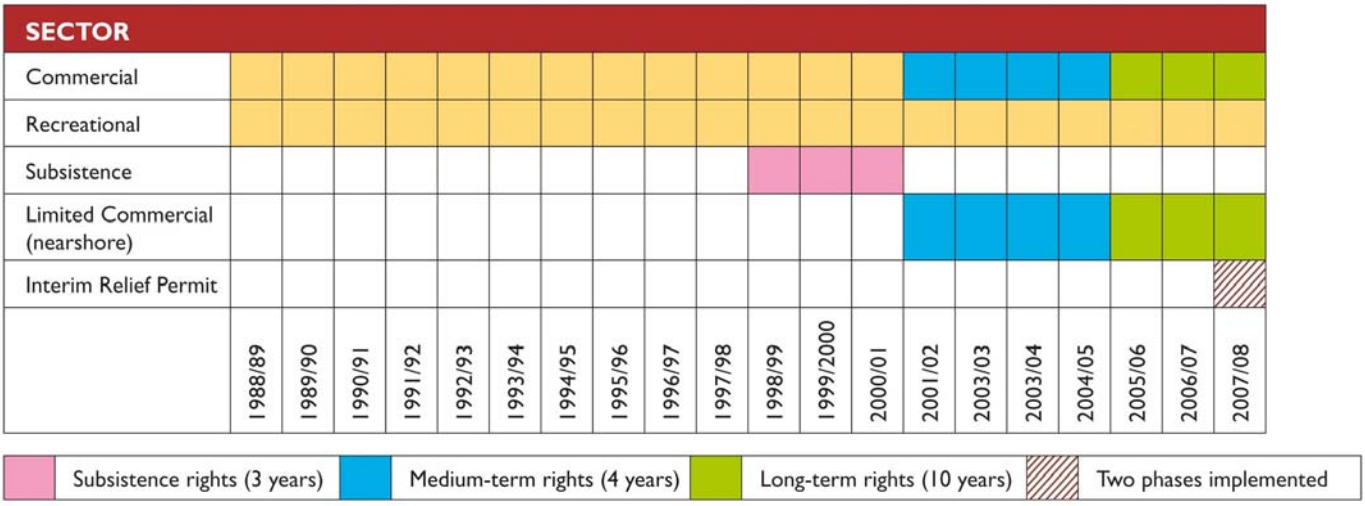


Table 6.1: A timeline of formal rights in the different sectors of the WCRL fishery highlighting the redistribution of rights following the MLRA in 1998

Fishing rights were broadened throughout the medium term (2001-2004) and long term (from 2005) rights allocation processes. A significant increase in the number of rightsholders, particularly in the nearshore sector is evident. Table 6.2 clearly highlights the increasing number of rightsholders. Although the fishery expanded in terms of the numbers of fishers participating, and transformed in terms of the inclusion of historically disadvantaged individuals, the legitimacy of this process has been disputed by traditional fishers. Many fishers argue that they have still been excluded from the fishery while undeserving opportunists were allocated rights (Isaacs 2003, Masifundise 2003). They believe the allocation process was fraught with difficulties, including monetary barriers (high application fees), complicated application procedures and illegitimate verification processes. In the Hangberg case, for example, one fisher's wife, and community leader, explained that she was encouraged by the knowledge that MCM would verify quota applications. However, in reality, she said that they were given a list of names to comment on in writing: 'It's not the same thing. Anyone could write anything about other people. It wasn't a valid way of verifying who was a fisher or not. They should have people from the Department into the community to speak to people, find out who we are, how we live. Now the wrong people are sitting with the quotas' (L49).

Season	Sector	No. of Permits/ Rightsholders	TAC (t)	Source
1992/3	Commercial	39	2400	Cockroft & Payne 1999, DEAT 2004a
	Subsistence	*	*	
	Recreational	59 202	469	Cockroft & Payne 1999
1999/00	Commercial	200	1720	D. van Zyl *in litt*
	Subsistence	*	170	WCRL Association 2008a
	Recreational	49 994**	447**	DEAT 2008c
2001/2	Commercial -offshore	234	1717	WCRL Association 2008a,b
	Limited Commercial -nearshore	511	409	WCRL Association 2008a,b
	Subsistence	*	*	
	Recreational	53 704	202	DEAT 2008c, WCRL Association 2008a
2007/8	Commercial -offshore	246	1754	WCRL Association 2008a,b
	Limited Commercial -nearshore	822	560	WCRL Association 2008a,b
	Interim Relief Permits	1240	79-175#	DEAT 2008c, Keulder & van Zyl 2008
	Recreational	No data	257	WCRL Association 2008a,b

*Subsistence rights were only allocated for three years from the 1998/1999 to the 2000/2001 WCRL fishing seasons. No record exists for the number of permits for the 1999/2000 season. In 2001 these rights were changed to limited commercial small-scale quotas.
**No data is available for the recreational permits for this year so the average for the three previous years is provided.
#This figure is uncertain due to poor catch data, with estimates ranging from 79-175t, based on daily limit and number of sea days. However, the higher estimate is based on the assumption that the second phase of the Interim Relief was from 15 November 2007-15 April 2008, however no permits were issued prior to 21 January 2008 (J. Sunde, Masifundise, *in litt*).

Table 6.2: Evolution of rights allocation in the WCRL fishery

The controversy around the allocation of rights was glaringly apparent when a spontaneous informal meeting took place at the Hout Bay harbour between a commercial quota holder, an informal fisher and a fisheries law enforcement official. When discussing some of the key issues around the fishery it became apparent that the

informal fisher had been fishing rock lobster for 30 years and had numerous rejected quota applications. On the other hand, the quota holder, who had been granted a right to harvest rock lobster, had been working for the municipality for ten years prior. The quota holder chuckled and said 'its all about who you know', indicating that he had hired a consultant to finalise his quota application – someone who knew the 'system' (informal meeting on 17 March 2007).

The new WCRL (nearshore) Policy, which was drafted in 2005 in preparation for the allocation of long term rights (DEAT 2005), identified a number of key objectives that included: ongoing transformation, fair and equitable allocation of rights, particularly to historical lobster fishers, sustained economic viability and long term environmental sustainability of the fishery. The policy stated that applicants who have a historical involvement in the fishery may 'be rewarded', but it explicitly stated that involvement might include being a crewmember in the WCRL commercial fishery, or any other commercial fishery (DEAT 2005: 11). However, many of the informal fishers argued that it was very difficult for them to prove that they had a historical connection to the fishery because they were rarely formally employed in the fishery. Those who admitted to being a 'poacher' on their application forms (as a means of proving historical involvement) felt that they were penalised for this by not being granted a right (L1, L3, L4, L8). Furthermore, some informal fishers who had infringements against the MLRA (due to illegal catch) were penalised, as it was stipulated in the policy that even 'minor infringements' would be negatively scored (DEAT 2005). Thus, informal fishers, even if they had years of experience harvesting WCRL, were at a disadvantage when applying for rights.

These concerns were emphasised at a national workshop on compliance in the WCRL fishery, in which informal fishers were given the opportunity to raise their concerns. They explained that traditional fishers, who have been denied access to the formal fishery, have been turned into 'criminals' by flawed government policy (Branch et al. 2007). Therefore, they argued that *bona fide* fishers needed to be identified and recognised as legitimate users of the resource (Branch *et al.* 2007).

The most recent attempt to broaden harvesting rights to traditional fishers was through the Interim Relief Permit, allocated in May 2007. However, in monitoring the process

in Hangberg, it highlighted the flawed rights allocation process, resulting in the almost complete exclusion of informal WCRL fishers from accessing Interim Relief permits[11]. The 65 permit holders who were granted rights in Hangberg were mostly fishers who were operating as crew for the commercial fishery (mainly WCRL and linefish). Although MCM resists accountability, as they argue that it was a community driven process, little assistance was given to the fishers to establish a legitimate process (L53). Thus, 'the poachers' were not considered fishers by their own community as the 'crew' felt that they should receive priority access to this opportunity (meeting in Hangberg 28 January 2008). Thus, the informal lobster harvesters, for whom the permits were also intended, were again excluded, much to their infuriation. As one informal fisher exclaimed: 'crew members have opportunities – we have nothing. We live from the sea every day but they say we aren't fishers. We have been left out again, AGAIN, AGAIN!!' (L8).

The conflict and exclusion that has been inherent in the rights allocation process was acknowledged by all stakeholder groups at a WCRL compliance workshop (Branch *et al.* 2007). However, the redistribution of rights remains controversial, as evidenced by the WCRL Association's court order to stop the implementation of the Interim Relief permits. Big industry argued that their long term rights were being jeopardised by these interim measures as it would have a significant impact on the resource, and on the TAC allocated to the commercial sector (WCRL Association Founding Affadvit 2008). In an interesting turn of events, the Minister opposed the court case, arguing that there were 'compelling reasons' to override scientific advice in terms of the resource. He stated: 'now that the allocation of long term fishing rights has been finalised, we are ready to make allocations of fishing to our poorest fishers a priority' (DEAT 2008a). Although the objectives may be sound from the fishers' perspective, experience shows that the allocation of these rights remains ad hoc, problematic and conflict ridden.

[11] Only three informal rock lobster fishers were allocated an interim relief permit.

4.2 Management Approach and Consultation

Van Sittert's (1994) overview of the WCRL fishery during the 1900s highlighted the limited scope of 'management', which in essence aimed to secure the lobster resource for the formal export industry. Although concerns of a growing black market trade were highlighted by the state as early as the 1920s, methods to control the domestic market, limit access to the resource and boost law enforcement, were ineffective in terms of minimising the informal fishery and achieving resource sustainability (van Sittert 1994). However, following the promulgation of the MLRA, political transformation required a shift in management approach. The state was thus faced with the considerable challenge of managing a fishery using the precautionary approach, at the same time as facing the raised expectations of traditional fishers following the political transition in South Africa (Cockroft and Payne 1999). Further, the situation was exacerbated by 'the depressed economy and the concomitant escalation of poaching of the accessible resource, in addition to a burgeoning recreational catch' (Cockroft and Payne 1999: 588). Almost a decade down the line, the same challenges are plaguing the fishery's stakeholders (Branch *et al.* 2007).

Although attempts were made in the late 1990s to broaden consultation in the management of the WCRL fishery, such processes have not been adequately developed nor sustained. In Cockroft and Payne's (1999) overview of the management of the lobster fishery in 1999, they highlight the important progress that had been made in terms of consulting with industry, engaging with broader stakeholder groups and developing consultative management plans. There were two key developments: (1) the establishment of informal Industry – Sea Fisheries Fora (INSEFs), which encouraged interested and affected parties to participate in management; and (2) the appointment of fishery-specific scientific working groups, which included industry appointed scientists as well as industry representatives as observers (Cockroft and Payne 1999). Following the redistribution of rights in 2001, however, the INSEFs largely disintegrated, partly due to the significant broadening of the fishery that included a considerable increase in the number of stakeholders. This not only meant that industry representation was difficult, but the interests of the various rightsholders (particularly between the nearshore and offshore sectors) were

sometimes in conflict and one 'industry voice' was not easy to achieve amidst the political climate of redistributed rights.

Following the disintegration of the INSEFs, the most effective formal mechanism for the commercial sector to collaborate with MCM is through the scientific working groups. The primary mandate of these groups is to monitor the resource and make recommendations regarding the TAC. With industry appointed scientists, the legitimacy of the scientific process is increased, and they are in a stronger position to negotiate TAC allocations. However, management decision-making does not take place in these working groups as the focus is on scientific research and resource-oriented decision-making related to the TAC. Discussions and debates about the socio-economic aspects of management, or compliance issues, are neglected as there are only ad hoc opportunities for communication. Although a WCRL management committee is supposed to exist, which entails meetings between industry and MCM, interaction is inconsistent and industry perceives these to be largely ineffective (L43, L44, L45).

A lack of effective engagement with MCM was evident at a WCRL workshop initiated by the commercial fishery in January 2007. A once-off attempt by the industry to bring together all the key stakeholders involved in, or affected by the WCRL fishery, only one person from the management section of MCM was present, out of 62 participants (Branch *et al.* 2007). Nevertheless, this initiative achieved interaction between MCM scientists, MCM compliance personnel, commercial fishers, informal fishers, one recreational fisher representative, and researchers, which proved productive in terms of identifying key challenges and possible solutions for managing the fishery and addressing compliance (Branch *et al.* 2007). This diverse group of stakeholders recognised a wide array of issues that were influencing the fishery, and which needed to be addressed. These were: (1) inadequate relationships among stakeholders; (2) concerns about allocation procedures; (3) inadequacies in enforcement; (4) lack of information or knowledge; and (5) socio-economic circumstances. Interestingly, even in 1999, with their optimistic analysis of industry-government consultation, Cockroft and Payne stated, 'there is a need to work on greater participation…by at least recreational and 'informal' (poaching) sectors. All have something to contribute towards better fisheries management…' (1999: 597).

Despite this acknowledgement, however, and the initiation of the WCRL workshop in 2007, senior MCM personnel did not take the process further. Thus, the recommendations of the workshop, as well as a follow-up meeting, were not implemented. The result, therefore, is ongoing frustration by the commercial sector, and complete despondency by the informal sector.

Although scientific research and the establishment of Operational Management Procedures (OMPs) are important aspects of management, complimentary socio-economic research is largely absent and is not contributing to management decision-making. In their scientific assessment of an ecosystem approach to managing the WCRL fishery, Shannon *et al.* (2006) concede that 'socio-economic studies to assess the forces motivating poachers are suggested, and market research is needed to assess the economic forces driving the large-scale illegal catch' (p. 141). Further, big industry acknowledged the importance of poverty alleviation in coastal communities as a means of impacting the informal fishery (meeting held on 1 March 2007), and a broader, strategic approach to managing the fishery in its entirety was proposed at the WCRL workshop (Branch *et al.* 2007). Little has been done to take this forward, however, and attempts to think strategically about the fishery have been thwarted by court cases and severely inadequate consultation procedures between the different stakeholders.

4.3 Marine Protected Areas

While Marine Protected Areas (MPAs) are globally promoted as an important management tool for fisheries, it is increasingly recognised that their success hinges as much on social organisation as on technical design (McClanahan *et al.* 2008). A discussion on MPAs is relevant for this chapter due their significance in the Hangberg case study site, and the overarching issues they raise in terms of small-scale fisheries in South Africa. Many MPAs also incorporate no-take zones, which prohibit the harvesting of marine resources in a particular geographic area. Jones (2006) argues that there are many debates and challenges related to no-take zones, and there is a need to collaborate between disciplines in order to understand the underlying issues and problems. He argues that fishers' benefits, as well as perceptions and attitudes

towards the no-take zone, are critical to the severity of the problems that may emerge, and ultimately to compliance.

The first formally declared MPA in South Africa was in 1964, following the drive of the IUCN in 1962 to establish a global system of protected areas (Sunde and Isaacs 2008). In 2008, almost 18% of South Africa's coast is protected through MPAs (Sunde and Isaacs 2008). However, examples of species-specific no-take zones (or 'sanctuaries') were evident in the early 1900s. Van Sittert (1994), for example, highlights the establishment of rock lobster sanctuaries as early as 1918, set up in response to industry concerns about resource depletion. The Hout Bay rock lobster sanctuary, adjacent to Hangberg, was proclaimed in 1934 (van Sittert 1994). However, in 1952, all but two lobster sanctuaries were deproclaimed as government stated that the sanctuaries had minimum conservation importance in the absence of effective enforcement. Thus, throughout the early to mid-1900s, with resource instability, the sanctuaries were proclaimed and deproclaimed with various law enforcement effort, but they ultimately had little impact as fishing (both formal and informal) continued irrespective of the laws (van Sittert 1994).

The state in fact opened the sanctuaries to 'experimental' commercial fishing from 1984 to 1993, but continued to restrict access to anyone outside the formal fishery (van Sittert 1994: p.41). The Hout Bay lobster sanctuary was reinforced as a 'no-take' zone through the promulgation of the Table Mountain National Park Marine Protected Area in 2004. Renamed the 'Karbonkelberg Sanctuary', it encompasses the Hout Bay sanctuary adjacent to Hangberg/Hout Bay (see Figure 6.9). In DEAT's notice of intent to declare the MPA, it states: 'the purpose of Sanctuary Zones is to allow marine species and ecosystems in those zones to exist in a natural state to further fulfil South Africa's commitments to the conservation of biodiversity and to enhance eco-tourism opportunities'. In addition, it states that 'all forms of fishing shall be prohibited within the Sanctuary Zones' (DEAT 2004c: 5).

Figure 6.9: The Table Mountain National Park Marine Protected Area, highlighting its six sanctuaries or 'no take zones', including the Karbonkelberg Sanctuary adjacent to Hangberg (adapted from DEAT 2004c).

Although eco-tourism opportunities are recognised, the rights of traditional fishers to secure a livelihood are not. In the case of Hangberg, with rudimentary rowing boats, most without an engine, it is extremely difficult for fishers to harvest outside the sanctuary. As informal fishers, their only mechanism to secure formal access to the rock lobster resource is through a recreational permit. However, even with this, they are unable to access a 'legal' fishing zone as they do not have the gear to do so. This sense of injustice was highlighted frequently during the fieldwork in Hangberg (L3, L4, L8, L11, L14, L48), with one fisher articulating his frustration so well: 'we are traditional fishers and we can't fish in our own backyard! We can't afford to go to other areas to fish – even with a recreational permit – because we don't have the boats or the petrol to do it…even the guys who fish on the rocks like they used to all those year ago – they can't do it either. It isn't right that we're being excluded from the sea that we live next to' (L1). Another fisher said: 'why can Kommetjie and Oceanview

and Gansbaai and Kleinmond people all get to fish next to where they live – are we not people too?' (L8).

This frustration is further exacerbated by the fact that commercial vessels are in fact *permitted* to harvest WCRL in the Karbonkelberg Sanctuary during March of every year. The formal fishery is allocated 30t per annum from the no-take zone as a 'research quota', which is seen as a critical source of scientific data for monitoring lobster growth rates (van Zyl 2001). While the scientists argue that the experimental fishery is not suited to hoopnets due to the location of tagged lobster in waters deeper than 30m, the Hangberg fishers have never been consulted about this fishery. Further, the fishers feel a sense of injustice as they are entirely excluded from any form of access to the sea adjacent to them, while they witness the extraction of lobster by commercial rightsholders. One informal fisher explained: 'large quota holders already have so much of the TAC and now they come and take out tons in our backyard and we have to stay out…it needs to be looked at…at the moment we don't care about the rules and the laws of government because it is all so unfair' (L3).

In retaliation, the informal fishers take their boats out at night and raid the traps of the commercial vessels while they harvest in the sanctuary. One night a fisher boasted of a 25kg 'catch' simply by lifting the traps (L4). In addition, stories were told of cutting the lines and sabotaging the traps, which were also confirmed by industry and government. The frustration and anger of the local fishers is evident and one fisher questioned – 'how can government get it so wrong?' (L4). When pressed by the media about commercial fishing activity in MPAs, MCM conceded that it was true (SAPA 2007). Table Mountain National Park (TMNP), which has been delegated compliance authority in the MPA, has also questioned the legitimacy of the no-take zone while commercial vessels are still permitted to harvest (L37, L39). The institutional arrangements in this regard have been problematic as TMNP personnel are expected to enforce the laws, but they are not involved in formulating regulations, nor in the allocation of access rights. Decision-making power thus remains in the hands of MCM.

4.4 Law Enforcement

During times of resource crisis, emphasis is increasingly placed on the role of law enforcement to sustain the formal fishery. This has been the case historically, in terms of enforcing new regulations and laws in the 1900s (van Sittert 1994), and remains the case today. With increasing concerns over reductions in the TAC, and blatant informal fishing, there is ongoing pressure from scientists and industry to enhance law enforcement capacity and effectiveness. Strategic meetings and workshops have been initiated by the WCRL commercial sector as a means to catalyse MCM to implement plans for increased law enforcement along the coast (Branch *et al.* 2007, Industry-MCM meeting 9 May 2007). However, frustration remains high as little progress has been achieved in this regard.

Almost all of the fishers who were interviewed, however, spoke of some altercation with law enforcement, including being fined, having nets taken, bait dumped or boats confiscated. Regardless, every single fisher indicated that it would not stop them from fishing. As one fisher explained: 'if you have to put food on the table then you just have to do it' (L14). One boat owner explained that he has a good relationship with his buyer whereby he borrows money to buy nets and other gear if they have been confiscated, and he then pays back his buyer in lobster (L4). Although fishers claimed that law enforcement would not deter their behaviour, observation indicated that it took time for many of the fishers to regain their positions with new or borrowed gear.

A further impact of law enforcement, from the fishers' perspective, was that it promoted the dangerous practice of fishing at night, or in bad weather. With most patrols taking place during the day, many of the informal fishing boats launch at night, which increases their safety risks due to poor visibility and rough seas. Incidents of drowning occur every year. Significant to this research was the drowning of a key informant, who was a skipper on one of the informal boats. In the words of the boat owner: '…he was like a son to me. This is government's fault…for making us go over the mountain, when it isn't safe, because we have no other choice…' (L4). This young man of 27 was supporting his girlfriend and four children.

4.4.1 Delegation of Compliance Authority

In recognising their capacity and resource constraints, MCM began delegating compliance authority to other institutions in the early 2000s. This is the case of the Table Mountain National Park MPA, where South African National Parks (SANParks), through TMNP, was contracted to undertake fisheries compliance in the MPA since 2005. Since this time, management arrangements have been affected by the promulgation of the Protected Areas Act (No. 57 of 2003), which states that 'marine and terrestrial protected areas with common boundaries must be managed as an integrated protected area by a single management authority' (Section 38(4)). Although the institutional arrangements under this Act are still being finalised for TMNP, the initial Memorandum of Understanding (MOU) to enhance fisheries compliance in the TMNP MPA, was an important development in enhancing visibility along this stretch of coast.

Thus, TMNP established a Marine Rangers Section in March 2005, which was operational under a two-year contract to MCM. In 2006 there were 19 people working in this section with a R1.9 million budget, patrolling the coast in vehicles and on foot, as well as conducting inshore patrols with two boats. Their mandate was to ensure fisheries compliance in the MPA, and in order to produce the necessary statistics, this was achieved through arrests and confiscations (L33). However, senior personnel explained that it was more important to them to keep the resources in the sea, and to make a presence along the coast. The problem with this approach, however, was that it was difficult to justify to MCM that their objectives were being met: 'it is very difficult to monitor the success of compliance activities' (L33).

4.4.2 Law Enforcement Challenges

Law enforcement remains the key strategy of government to respond to the WCRL informal fishery, but a number of challenges remain. First, there were a number of examples of complacency within law enforcement sectors of MCM. There seemed to be a sense that there was little top-level support for local decision-making and that

managers were not aware of the challenges that they were facing on the ground (L33, L34, L35, L39). The frustrations were made apparent in one MCM field station when the following discussion took place:

> *Interviewer*: do you do inshore patrols in this area?
>
> *MCM Fishery Officer (L36)*: No, we just do road patrols along the coast. We are trying to organise the papers for our patrol boat but right now it is just sitting in the harbour.
>
> *Interviewer*: Oh – so you can't patrol on your boat because of administrative issues – you need certain papers to be finalised?
>
> *MCM Fishery Officer*: Yes. But even if we had the boat, there is no one in this office that has a skipper's license anyway.

Further frustrations included not having uniforms and not receiving training. Respondents explained that they had to learn things 'like laws and regulations and species identification on the job' (L34, L35, L36). The absence and ineffectiveness of law enforcement in terms of monitoring the formal commercial fishery were broadly highlighted as being highly problematic (Branch *et al.* 2007, L37, L42, L43, L45).

Second, a number of obstacles were apparent in terms of the delegation of compliance authority, particularly in relation to the disjunction that existed between management decision-making and compliance activities. A two day workshop with TMNP marine rangers indicated that although they were required to enforce fisheries laws and regulations, they were not in a position to 'get creative' in terms of achieving compliance (L37, L39). By working under MCM, they were limited in terms of their activities and they were not involved in developing laws or in making management decisions. Thus, 'problems faced on the ground aren't considered by the people making decisions at MCM' (L40). This was the clear message that was emerging in relation to informal fishers in the MPA adjacent to Hangberg. Although TMNP recognised that the fishers were contravening the MLRA, and therefore they were mandated to intervene, they felt frustrated that the root causes of the 'poaching' were not being acknowledged nor addressed by MCM (L37). Although they recognised that there were highly organised syndicates operating in both the abalone and lobster trade, they also acknowledged that there were traditional fishers who were harvesting illegally because they had no other economic options (L37, L39). Nevertheless, they

had no decision making power in terms of management, and they were expected to continue to patrol and fine these fishers. Thus, there was a frustration that their contribution was only in terms of short-term law enforcement, rather than developing strategies to enhance compliance in the long term (L37, L39).

This disjunction between law enforcement and management was glaringly apparent during a hostile outburst between TMNP marine rangers and approximately 40 informal lobster fishers in the Karbonkelberg Sanctuary in November 2005. When the situation diffused, TMNP proposed a meeting to discuss the key issues – 'we needed to resolve the problem' (L33). However, when the meeting was set up at the harbour, in MCM offices (because it is in close proximity to the fishers), a senior MCM compliance official cancelled the meeting because 'MCM is not allowed to meet with poachers' (L33). Although some TMNP officials managed to meet with the fishers anyway, there was very little follow-up because the issues were management related – in terms of the proclamation of the sanctuary, subsistence fishing rights and communication with MCM. TMNP rangers felt that these decisions were 'out of our hands' (L39). From the fishers' perspective, they felt that TMNP had made an initial effort with them (more so than MCM had ever done) but they were frustrated that two years later nothing more had happened (L1, L3, L4, L49).

A third challenge was that all the law enforcement personnel interviewed for this study, from the various institutions, were empathetic towards the informal fishers. There was a conflict of interest because the officers on the ground acknowledged that they needed to 'do their work' (which includes patrols, giving fines, confiscating fish and equipment and sometimes making arrests), but they understood that many of the fishers harvest informally because 'they need food for their families' (L34, L35, L37). There is some reluctance on their part to arrest or fine the fishers, and in some cases, law enforcement officials are doing routine checks in the sanctuary, but largely 'leave them to their business' (L34). This approach frustrates industry and civil society, but highlights the fact that the underlying drivers of informal fishing are not understood nor addressed.

Interestingly, the recognition of the socio-economic drivers of informal fishing were also highlighted by the few commercial rightsholders who were interviewed in the

community. One rightsholder explained that he knows that the resource is being impacted, and that this will ultimately affect him, but he said that the people in his community have few alternatives: 'I don't motivate it. But there must be a law that you must respect. The poachers do it to put bread on the table' (L2). This was also reiterated by the informal fishers themselves, some stating that even if they received legal access, they wouldn't be able to keep poachers out: 'how can I deny someone bread? I've been there – I couldn't do it to someone else' (L11). As one teacher in the secondary school stated: 'the poaching is a big issue for the learners…but they could be doing drugs or breaking into houses – this is a better alternative' (L51). Law enforcement, therefore, was not supported as an effective means to address the issues underlying the informal fishery.

From the perspective of law enforcement officials, the illicit abalone trade was more of a priority and they were required to focus their resources and effort on that. Interestingly, lobster fishers observed that law enforcement presence was much higher since abalone became a focus of government, and they also perceive this to be a greater priority by the authorities. Law enforcement is a frustration for the fishers, but they don't feel that it has a significant long-term impact on their operations.

Thus, the research indicated that the informal WCRL fishery was thriving, despite law enforcement efforts. Even if enforcement personnel were present, conducting their operations and producing their 'numbers' (arrests, fines, confiscations etc.), they were having little long-term impact on the operations of the informal fishers. Harvesting activities continued despite the setbacks and financial implications of enforcement efforts. If anything, frustration mounted as fishers perceived the state preventing them from a legitimate livelihood while big fishing companies entered the 'sanctuary' with impunity. Attempts to explore alternative compliance strategies are largely hampered by the lack of coordination that exists between compliance effort and management decision-making, both between, and within, the different government agencies.

5. FACTORS INFLUENCING COMPLIANCE IN WCRL FISHERY

There are a number of underlying issues in this case study that are influencing fishers' decisions to comply or not with rules and regulations. The preliminary conceptual framework, introduced in Chapter Three (Figure 3.2), will again be drawn on for this case study as a means to highlight the diverse and complex factors that are influencing behaviour. Van Sittert's (1993, 1994) historical reflection on the development of the WCRL fishery, for example, has highlighted the power of industry and the state throughout the 1900s to marginalise the small-scale sector. The result was a monopoly industry with an export oriented focus. Even after the promulgation of the MRLA, the power of big industry to secure foreign investment and establish international markets has continued to be prioritised over the interests of small-scale fishers to secure their livelihoods. This is evident in the fact that the WCRL industry legally opposed the allocation of an Interim Relief Permit to traditional fishers that allowed 20 lobsters per week to be harvested. Big industry argues that an estimated 120-200 tons of lobster was likely to be harvested in 2007 through this interim permit[12]. They argue that this additional offtake will jeopardise the sustainability of the resource and future catches – ultimately penalising the commercial fishery in the long term (WCRL Association Founding Affadavit 2008). The small-scale fishers, on the other hand, have argued that the Interim Relief Permit was a significant source of poverty relief during its allocation, and was highly valued by the fishers (Garcia 2008, L1, L4, L55, L56). In response to the court case, one small-scale fisher (who was allocated an Interim Relief Permit) explained: 'how can we threaten the big industry? We take nothing compared to them. THEY are threatening us and our way of life' (L8). There is a genuine injustice that industry is legally contesting the Interim Relief permit, while a 257t recreational fishery goes unquestioned, and discussions around the 500t 'illegal catch' (which is incorporated into TAC modelling) are not initiated.

This frustration is further exacerbated by the fishers in the Hangberg case study as big industry is permitted to harvest a research quota in the 'no-take zone' in the MPA.

[12] While scientists acknowledge that data is of poor quality, they estimate the harvesting levels to be around 178t (Keulder and van Zyl 2008). Fishers, however, argue that catches were much lower due to delays in issuing permits, weather and other logistical constraints.

Although scientific research is still considered pertinent in this area, traditional lobster fishers do not benefit in any way, and the injustices of the rights allocation process is exacerbated through this policy. Thus, it seems evident that the power of big industry, whether through the courts or in collaboration with the state, to influence laws and policies in their favour continue to marginalise small-scale fishers, many of whom have a long history of harvesting the WCRL resource.

Thus, from an institutional perspective, the ongoing exclusion of traditional fishers from the formal fishery has exacerbated the informal trade. With no small-scale fisheries policy to protect customary rights, even the post-democratic fisheries 'transformation' process entrenched rights in the hands of big industry, largely through internal transformation. Access to the WCRL fishery was undoubtedly extended through the limited commercial sector, but the resource-oriented approach of the state resulted in a rights-allocation process that was deemed illegitimate by many of the fishers. Thus, despite law enforcement efforts, informal fishers who did not gain access to the formal fishery continued to harvest WCRL. There is no obligation to comply with the law and there are few social sanctions in place in coastal communities. The divisiveness of the rights allocation process has made it difficult for rightsholders to sanction informal fishers who are friends or relatives. Thus, the state relies almost solely on law enforcement to enforce rules, which is problematic due to weak capacity and the conflict that results. Further, although the delegation of compliance authority to other government agencies has been considered important, its narrow implementation has resulted in the separation of fisheries management from law enforcement. This has created confusion and frustration for compliance personnel, and has led to the failure to develop a strategic approach to addressing non-compliance.

There are two key social factors that have emanated from the research that are influencing fishers' behaviour. The first is the importance associated with customary fishing practices, and the perceived right of fishers to protect that tradition. For those who have grown up on the sea with their fathers and grandfathers, they argue that their fishing culture should be preserved and that they should receive preferential rights of access to marine resources. This is related to the second social factor, which is the weak presence of social controls. With an illegitimate rights-allocation system,

there is little cohesion within coastal communities and few incentives to protect resources as a collective. Even formal rightsholders have recognised the need of informal fishers to eke out a living from the sea, arguing that they were once doing the same.

From an economic perspective, the informal WCRL fishery is thriving through local market demand. With the industrial fishery having a long history of an export-oriented trade, the domestic market was largely ignored. This provided an opportunity for those traditional fishers who had been squeezed out of the fishery from the 1950s. Lobster was historically considered an important source of protein for the poor, but increasingly became of cultural importance during times of celebration for many communities on the west and south coasts. Further, with a growing tourism trade, South African lobster was in high demand. Although some informally harvested lobster is destined for the overseas market, the majority is used to supply the local market. This trade, therefore, has provided an important livelihood for many informal WCRL fishers, many of whom depend on this as a sole source of income. More organised operations have also developed as a result of the economic gains of the lobster fishery. This has led to the involvement of opportunists, who are not supported by the general community, but who are attracted to the fishery as a source of easy money.

Finally, fishers' behaviour is influenced by biophysical factors, which are key to the effective management of the fishery. The weather, for example, plays a role in the sustainability of the resource as fishers are often prohibited from entering the sea due to high swells and unsafe conditions. In addition, the southerly migration of the lobster, as well as 'walkouts' due to red tides, have affected the availability of the resource. For some formal fishers, who are unable to harvest their whole quota, turn to the informal fishery at various times of the year to supplement their income. The uncertainty of the southerly migration has also raised concerns of stability in the small-scale sector, which erodes incentives to comply with rules. These dynamics of the natural system, therefore, are important to understand in relation to the social and economic impacts, and how this influences fishers' behaviour.

A summary of the key factors that influence compliance in the WCRL fishery have been highlighted above. These factors have been particularly explored through the Hangberg case study, emphasising the need to acknowledge, understand and respond to the diversity of issues that influence fisher behaviour.

6. CONCLUSION

The WCRL fishery is at a pivotal stage in its development. The commercial export-oriented fishery has a long history, operating for over a Century and dominated by the powerful interests of big capital. With an even longer history, however, traditional fishers along the west coast have been harvesting lobster as a source of food, bait and income, which has significantly contributed to their livelihoods. Thus, an informal fishery began to develop in the early-1900s as small-scale fishers became increasingly regulated in terms of access to the resource. Concerns over resource declines led to further exclusion in the mid-1900s, despite significant poverty along the coast. Although fishing for the black market remained an important source of subsistence and alternative employment (van Sittert 1994), it was during the political transition of the mid-1990s that MCM began to reassess the inequities in the WCRL fishery.

In this context, MCM has been required to acknowledge the marginalisation of small scale fishers at the same time as protecting a dwindling resource and addressing the disenchantment of an economically unstable commercial industry. This unenviable balancing act has ultimately led to high levels of non-compliance. The informal fishers, with significant resentment against MCM and big industry, continue to operate in an organised fishery and plan to enhance their operations and grow their informal markets. In addition, small-scale rightsholders, who see declining annual TACs and uncertain futures, are drawn to the informal trade as a means to sustain their income.

The broader initiatives of MCM do, however, need to be recognised, including the attempt to allocate fishing rights to small-scale fishers, to build government-industry working relations and to decentralise compliance activities. In addition, the initiation of a WCRL fishery workshop, by industry, in January 2007 highlighted an openness

to ‘get strategic’ about managing the fishery in its entirety. Many of the key issues plaguing the fishery were highlighted, including the exclusion of traditional fishers, ineffective law enforcement, poverty and inadequate government-industry collaboration. However, there was little leadership by MCM to take the process forward, and in early 2008, industry reaffirmed its own economic interests by challenging the Minister of DEAT in a court of law to suspend the Interim Relief Permits. Ironically, the Minister defended the small-scale fishers, arguing that they needed to be catered for.

Although there have been important attempts by the state to recognise small-scale fishers and to explore broader management strategies, law enforcement continues to be the main strategy employed by MCM to achieve compliance, and issues such as commercial fishing in a ‘no-take zone’, adjacent to a traditional fishing community, are not addressed. Further, a court case to challenge interim relief permits, while a 257t recreational fishery continues to operate, highlights the inequity in the fishery. A number of underlying challenges in this fishery have been raised and this research emphasises the importance of tackling these, and clarifying the key factors that influence fisher behaviour. Trends in the WCRL fishery highlight the importance of acknowledging the informal fishery as a key component of the fishery system as a whole, which needs to be understood and incorporated into broader management strategies.

CHAPTER SEVEN

THE FACTORS, DRIVERS AND UNDERLYING PRINCIPLES OF SMALL-SCALE FISHERIES COMPLIANCE IN SOUTH AFRICA

1. INTRODUCTION

Traditionally, the key objective of fisheries management has been to sustain fish stocks and ensure the ecological integrity of the natural system (Raakjær-Nielsen *et al.* 2004). The concept of sustainability, however, has significantly evolved over the years to acknowledge the inextricable link between the social and natural systems. In this context, a sustainable fisheries system is one that leads to social, economic, ecological and institutional sustainability of the fishery as a whole (Charles 2001). Threats to any of these components of the fishery system need to be understood and addressed in order to achieve sustainability in this broad sense. Non-compliance has been identified as a threat to resource sustainability (Sutinen *et al.* 1990) and efforts to enhance compliance have largely been implemented in isolation of understanding the broader factors that may influence fisher behaviour. As a result, despite enhanced law enforcement programmes, such as those in South Africa, fisheries remain threatened, with both the resources and the fishers at risk. This has highlighted the need to gain a broader understanding of the factors, and key drivers, that motivate fishers to comply (or not) with rules and laws.

This chapter aims to consolidate and analyse the information that has been collected in this study. A revised conceptual framework for understanding small-scale fisheries compliance will be briefly presented, which is based on the empirical research, as well as the theoretical concepts that were introduced in Chapter Three. Although the underlying factors that influence fisher behaviour will not be specifically discussed again in this chapter, they are drawn on to highlight the key drivers influencing compliance. Section Three of this chapter then provides an analysis of the application of the conceptual framework to the case studies investigated, and the small-scale

sector broadly in South Africa. This analysis assists in understanding the combination of factors that lead to change in the nature of the fishery, and which result in shifts between the informal and formal sectors. In analysing these factors and drivers, it has been necessary to revisit the theoretical ideas underpinning the conceptual framework. By doing so, the chapter ends with a discussion of a set of key principles that should guide the development of an alternative and more integrated approach to fisheries compliance.

2. FACTORS INFLUENCING FISHER BEHAVIOUR

Drawing on the preliminary conceptual framework, which was introduced in Chapter Three, key factors have been highlighted that influence fisheries compliance in South Africa. Both the formal and informal fisheries are influenced by these factors, which are interconnected and change over time. As these factors emerged from data collection, they were further explored through additional fieldwork and by revisiting the literature. This iterative research process also led to ongoing conceptual development, which is presented in this chapter. As highlighted in Figure 7.1, an understanding of compliance behavior first requires an understanding of law, and the power dynamics that have shaped it. These laws, and their historical context, then influence the dynamics that exist between the other factors in the fishery system, all of which have been highlighted in this research as important in influencing fisher behavior. Thus, increased law enforcement strategies, which are expected to enforce rules that are created in isolation of the political, social, economic, institutional and biophysical context, will have little long-term impact. An understanding of compliance, therefore, is embedded in an understanding of the fishery system as a whole.

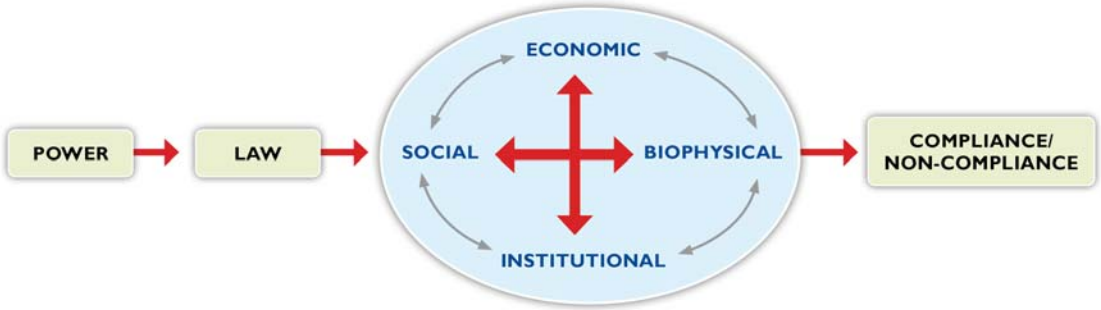


Figure 7.1: A conceptual framework for understanding small-scale fisheries compliance

Thus, by relying on an approach to compliance that is based on reductionism, or which assumes that fishers are inherently self-maximising individuals, ignores the diversity of factors that influence behaviour. Further, it is not only necessary to identify the factors that influence compliance behaviour, but also how they interact. This framework, therefore, highlights a new approach to understanding small-scale fisheries compliance. Although this framework has been developed through an examination of case studies in South Africa, there is potential for it to have broader applicability.

3. KEY DRIVERS OF COMPLIANCE BEHAVIOUR

Fundamental to this research has been the realisation that different factors, and the way they interact, influence compliance behaviour in different ways and at different times. As a result, a combination of factors, acting together, become 'drivers' that change the way fishers' behave. Berkes (2006) defines drivers as 'those key factors that cause change in a system' (p. 48). The change in fisher behaviour, as a result of these key drivers, needs to be understood in order to develop appropriate strategies to intervene. However, Berkes (2006) states that drivers are contested and are socially constructed. As a result, the drivers that are identified by the state, and which are acted upon, may be different from those identified by the fishers. In South Africa, this explains the state's focus on law enforcement, which is argued to address the economic drivers of non-compliance. However, as is evident from this research, there

are many other factors, and subsequent drivers, that are influencing compliance behaviour. Thus, this section will apply the conceptual framework outlined in Figure 7.1 to the two case studies, and the small-scale fisheries sector in South Africa more generally. By doing so, an understanding of the diverse factors that are influencing fisher behaviour emerge and the key drivers that lead to changes in the way the fishery system operates are identified. Figure 7.2, therefore, illustrates how compliance behaviour changes over time and how different factors have combined to drive change.

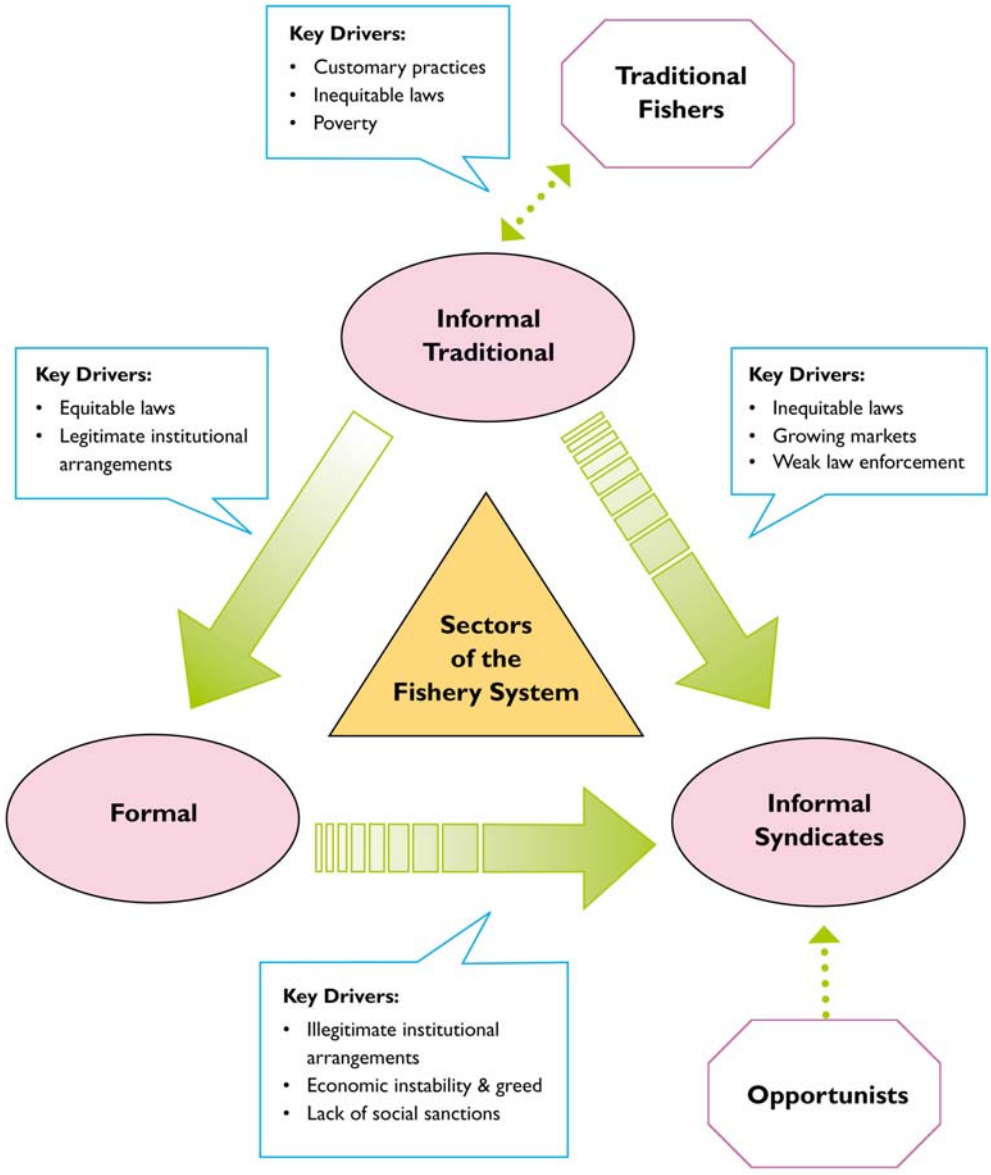
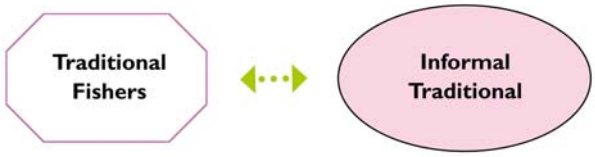


Figure 7.2: Key drivers influencing compliance in an evolving fishery system. The large dotted arrows illustrate a continuum of fishing activity that is shifting from one sector to another.

Evident from this figure, based on the case study research, is that there is an evolution taking place in which fisheries are moving toward 'informal syndicates'. Although the scale, and extent to which this takes place will depend on each fishery context, there are similar trends occurring within the case studies investigated for this research. The section below will discuss this evolving fishery system in greater detail, drawing on the empirical evidence presented in the case study chapters.

3.1 Key Drivers Influencing the Shift from 'Traditional Fishers' to the 'Informal Traditional' Fishery



The involvement of traditional fishers in the informal traditional fishery is largely driven by political decision-making (laws and policies), as well as fishers' social and economic circumstances. In this context, social relates strongly to customary practices, and the perceived traditional rights of fishers to harvest resources that they have historically accessed. The economic drivers relate to poverty, and the fishers perceived right to secure a livelihood from the sea, to provide for their families and to meet basic needs. As stipulated in the case study chapters, the informal traditional fishery is considered illegal by the state, largely consists of traditional fishers and resources are harvested on a small-scale, as a means to secure a livelihood.

The case studies have indicated that the traditional informal fishery is significantly driven by inequitable laws and policies that excluded the majority of small-scale fishers from legally accessing marine resources. This has both a historical and a contemporary context, with van Sittert (2002b, 2003) arguing that South Africa has a legacy of inequality in its fisheries. Even through attempts at 'transformation', small-scale fishers have remained marginalised, while the interests of big industry capital have remained secured (Croeser *et al.* 2006, Isaacs *et al.* 2005, Raakjær-Nielsen and Hara 2006).

In the West Coast Rock Lobster (WCRL) case, although communities harvested lobster for centuries, increased government control over the open access fishery in the early 1900s led to stricter regulations and limits on public access (van Sittert 1985, 1993, 1994). Locally considered a 'food for the poor', it was the booming overseas market that had directly influenced local management measures, which sought to secure foreign investment through export (van Sittert 1993, 1994). As a result, conservation (or exclusion) measures were put in place to sustain the overseas market at the expense of small-scale fishers. This became evident in terms of increased limits on open access fishing and the centralisation of the lobster industry in the hands of monopoly industry by the 1950s. As one of the oldest fishers in the Hangberg case study community explained: 'I have been catching kreef [lobster] since I was a boy. Then there were all the rules that were made to stop us. We kept fishing, though, because that is what we are – fishermen' (L10). One of the legacies of the past, which was discussed in Chapter Six, is the existence of a Marine Protected Area (MPA) on the doorstep of Hangberg. In addition to the fishers being prohibited from any fishing activity in this zone (DEAT 2004c), the fishers' perceived injustice is exacerbated by the fact that commercial vessels are permitted to harvest a 30t research quota from this zone every year.

In the abalone fishery, as discussed in Chapter Five, harvesting also began as an open access system. Limits on harvesting were increasingly put in place as a means to protect the resource and to secure a valuable, and growing, export industry. With the introduction of a production quota in 1970, five white owned companies eventually became entrenched, and dominated the industry. Despite the overseas market, a local demand for abalone remained, particularly to seafood and Asian restaurants in Cape Town, which provided the local market for informal fishers. As one traditional fisher explained: 'I used to dive abalone – I dived in the '60s in the Transkei. Then they took away my permit when the system changed. I used to sell my abalone for 9 pence each! I continued to dive all those years, and the market really opened up in the '80s – for the Chinese restaurants' (A62).

Both of the case studies in this research have had a history whereby the political and economic power of the state and monopoly capital have marginalised the interests of the small-scale fishers in order to secure a lucrative export industry. Thus, the

traditional informal fishery emerged as a result of the formal rules that were put in place to limit access. These laws, which were implemented to 'conserve' the resources, essentially drove traditional fisheries underground, as fishers and their families relied on marine resources as a key source of food and/or income (van Sittert 1993, 1994). As one informal lobster fisher explained: 'the sea is a source of income for us – it has always been that way in our families. It is the big companies that tell us that what we do is wrong – because they benefit from the system – we don't. People here don't have a choice – it is how we live to bring food to our families' (L1). Thus, with widespread coastal poverty (Glavovic and Boonzaier 2007), and with fishers perceiving their situation as 'worse off than before' (Cardoso *et al.* 2005), poverty remains a key driver influencing fisher behaviour.

As a result, in many small-scale fisheries in South Africa, the broader fishing community does not perceive informal traditional fishing to be 'wrong' – but it is considered a legitimate *right* for those living adjacent to the sea to feed their families, whether they have a formal permit to fish or not (Hauck *et al.* 2002, Masifundise 2003). Linked to this are the social and moral values that are attributed to customary fishing practices. The right to sustain one's culture, and one's livelihood, are considered important values that fishers' believe should be respected and incorporated into fisheries policy and law. For fishers who have not gained formal access to fisheries, customary rights override their obligation to comply with formal rules. Thus, marine resources became part of the 'freedom struggle' in the 1990s, to fight for what people believed was their 'right' (A62, A1).

Thus, in both case studies, the informal traditional fishery became established as an accepted livelihood strategy in many coastal communities. As one fishers' wife explained: 'it puts food on the table. This is what [my husband] knows – he has been doing it since a child. The people here do not see it as wrong – they understand why it happens – they are not upset by it' (L50). Even formal fishers, who may be threatened by the impact of informal fishing, acknowledged the economic need of informal fishers and their traditional right to access marine resources. As one formal lobster fisher explained: 'some of these guys have been poaching over the mountain for more than 20 years and they still don't have a quota. It isn't fair – I understand why they do it. They need to put bread on the table. You can't tell someone they

can't fish if they need to put bread on the table' (L6). This was also the case in the early-1990s in the abalone fishery, when the informal traditional fishery was gaining legitimacy due to protest fishing and the lobbying of fishers for access rights (Hauck 1997).

Other small-scale fisheries in South Africa exhibit similar trends to those outlined above. The research of the Subsistence Fisheries Task Group (SFTG) clearly highlighted that many traditional fishers along South Africa's coast were fishing informally, and considered 'illegal' by the authorities (Harris *et al.* 2002a, Hauck *et al.* 2002). This was largely due to their exclusion from formally accessing marine resources. Although recreational permits were available to everyone, the restrictions of these permits, in terms of fees, harvesting limits and restrictions on sale, were not appropriate or sufficient for those fishers relying on marine resources for their livelihood (Harris *et al.* 2002a, Sowman 2006). Furthermore, widespread poverty in coastal communities, a high reliance on marine resources as a livelihood strategy and few economic alternatives (Branch *et al.* 2002, Glavovic *et al.* 2002, Hauck and Sowman 2003, Sowman *et al.* 2008), have all contributed to the norms and values that fishers' associate with resource use. Thus, fishing activity is based on fishers' perceived rights, whether legal or not, to sustain their customary fishing practices as well as their livelihoods. These drivers, coupled with political decision making that has led to inequitable laws and high levels of exclusion, have contributed to a thriving traditional informal fishery.

3.2 Key Drivers Influencing the Shift from the 'Informal Traditional' Fishery to the 'Formal' Fishery

The onset of democracy in South Africa provided new opportunities for those fishers who had been denied access to coastal and fisheries resources in the past (Hauck and Sowman 2005). A fisheries policy process was introduced in 1995, with a key aim to address the inequitable access to marine resources. The political transition, therefore,

from the Apartheid policies of the past, to a newly democratised nation, was a key driver to recognising the rights of traditional fishers. The promise of the new government was 'the upliftment of impoverished coastal communities through improved access to marine resources' (ANC 1994: 104). This political environment, coupled with new institutional arrangements, was fundamentally important for recognising, and formalising, traditional fishers.

One of the most significant developments in terms of small-scale fisheries was the legal recognition of subsistence fishers for the first time in fisheries legislation in South Africa. The MLRA (1998) promoted reform in terms of redistributing access rights to historically disadvantaged individuals (Witbooi 2006). In the abalone and rock lobster fisheries, subsistence permits were allocated to fishers from 1998, which was the first time they were formally recognised outside the recreational sector. Following the recommendations of the SFTG, subsistence permits were abandoned in favour of small-scale quotas, through the limited commercial sector from 2001. For many informal fishers, this had been an ideal opportunity for them to gain legal access to marine resources. As one abalone fisher explained: '…the quotas have been a good thing for this community. It has given a lot of people a source of income and the poaching had really decreased. It gave the guys security and they didn't want to take chances – they didn't want to lose those quotas' (A14).

In addition to broadening access rights, new institutional arrangements were set up to manage these newly formalised fisheries. In the abalone fishery policy of 2003 (DEAT 2003), for example, progressive fisheries management concepts were being introduced, such as co-management and the Territorial User-Rights Fishery (TURF). Underpinning these concepts was the objective of instilling ownership amongst rights holders and ensuring cooperative management between the rightsholders operating in these TURFs and the authorities. In addition, other institutional arrangements such as Scientific Working Groups and Management Working Groups were initiated by MCM for the different fisheries, including abalone and WCRL. In the small-scale fisheries sector, an important development was the establishment of a Subsistence Fisheries Management Unit at national level, as well as the appointment of some extension officers at provincial level. Thus, in addition to formalising access to small-

scale fishers, attempts were also being made to increase fisher participation in management.

However, as was discussed in the case study chapters, despite the attempts by MCM to broaden access rights to traditional fishers, and to develop progressive policies, they were often implemented in isolation of the realities on the ground. For example, a number of *bona fide* fishers continue to remain excluded from formally accessing marine resources (Cardoso *et al.* 2005, Isaacs 2006a, Masifundise 2003, Sowman 2006). For example, the focus on broadening access to 'historically disadvantaged individuals', in some cases meant that powerful local elites benefited at the expense of traditional fishers (Isaacs 2003). Further, although MCM recognised that institutional arrangements needed to be put in place to facilitate increased participation of new resource users, in reality it was difficult to implement. Some argue that the fisheries authority was ill-equipped, from an institutional perspective, to engage and govern the small-scale fisheries sector (Sowman 2006).

The province of KwaZulu-Natal, however, where there has been a delegation of fisheries authority, is the only province in South Africa where institutional structures have been put in place to manage small-scale fisheries at both provincial and local level. A co-management policy has been developed to implement co-management arrangements between fishers and the provincial authority (EKZN Wildlife), in order to jointly manage inshore marine resources (Harris *et al.* 2007). Thus, in KZN, the formalisation of traditional fisheries was complemented by active attempts to establish cooperative institutional arrangements, whereby small-scale fishers could participate in the development of rules and the management of the fishery. While both successes and weaknesses of these co-management arrangements have been identified (Clark 2006b, Hasler 2006, Kapfudzaruwa *et al.* 2008, Napier *et al.* 2005), the authorities argue that compliance is 'high' amongst the small-scale fishers (Harris *et al.* 2003, Hauck and Hasler 2006).

Pilot co-management projects have been initiated in other coastal provinces, but they have been ad hoc, with varying degrees of commitment from the national fisheries authority (Hauck and Sowman 2003). The institutional arrangements at national level have not adequately changed to engage effectively with the small-scale fisheries

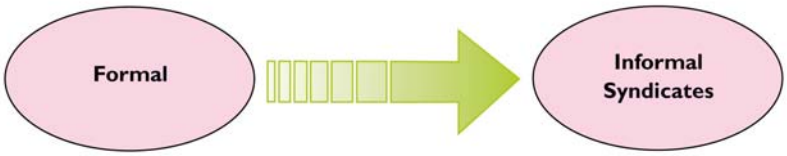
sector. As a result, the fishers interviewed for this study, as well as others (Cardoso *et al.* 2005, Hauck *et al.* 2002, Masifundise 2008b, Sowman *et al.* 2008), have argued that greater cooperation and engagement is required between the fishers (both formal and informal) and MCM to manage and sustain small-scale fisheries. As one abalone fisher explained: 'once we had our quotas it felt like MCM was handing everything over to us to sort out. But we needed each other. We needed help from them, and they needed help from us. But it never happened' (A28).

Thus, although attempts were made through the MLRA and subsequent policies to broaden participation in fisheries management, and to increase the legitimacy of the new management regime, it was difficult to achieve in practice. Institutional arrangements remained highly centralised, which resulted in ineffective implementation on the ground. Although the fishers recognised the importance of broadening access rights, the reality was that many were still excluded. This, therefore, impacted on the legitimacy of the institutional arrangements, as well as the sense of ownership that was expected to have been created through 'legal' access.

South Africa is now embarking on a new small-scale fisheries policy, which has the potential to address some of the challenges in small-scale fishery systems. This policy could provide an opportunity to reassess both access rights and institutional arrangements. However, as discussed in Chapter Four, the challenge of MCM to formalise customary fishing practices is exacerbated by the limited resources available in the nearshore zone (Cockroft *et al.* 2002). This dilemma was recognised by the SFTG, which stated that if small-scale fishers are to be adequately accommodated, there would need to be a reallocation of rights among existing sectors (i.e. commercial and recreational) (Harris *et al.* 2002a). However, with long-term rights allocated to the commercial fisheries since 2005, redistribution will be difficult, and will likely lead to more court cases. Thus, the small-scale fishery policy process, which rests on the premise that traditional fishers should be given preferential access to marine resources, is unfolding in an uncertain political environment. Nevertheless, important steps have been taken to broaden access to small-scale fishers in South Africa, which need to be acknowledged. Further, the lessons and challenges that have been raised in KZN, through the implementation of more participatory approaches to small-scale fisheries, need to be explored further. Significant political will is required

to prioritise the rights of small-scale fishers, and to secure and sustain these rights through legitimate institutional arrangements.

3.3 Key Drivers Influencing the Shift from a 'Formal' Fishery to 'Informal Syndicates'



The involvement of formal fishers in the informal fishery has been discussed in both case study chapters. This shift, which must be understood as operating at different scales and levels of organisation, is largely driven by the institutional arrangements of the fishery, coupled with the socio-economic circumstances of the fishers. The social drivers in this context refer to the limited social sanctions evident among resource users, and the perceived legitimacy of informal fishing. The economic drivers largely relate to the importance of achieving economic stability, but also include aspects of greed. Formal fishers may engage in both the traditional or syndicated informal fisheries, but the trend indicates that there is a growing shift toward becoming involved in syndicates. In the abalone fishery, the informal trade is largely dominated by syndicates that are controlled by highly organised outsiders linked to an international black market. Formal WCRL fishers, however, are largely trading with the informal traditional fishery, with links to the domestic market. Nevertheless, large scale informal trade through international syndicates has been known to take place (Le May 2002) and there is concern that the lobster fishery may evolve in a similar direction to that of the abalone fishery (L42, L43).

Although there was widespread support for the broadening of formal access rights, most fishers argued that institutional arrangements were ineffective in protecting these rights, securing their livelihoods and minimising the informal trade. In relation to the abalone TURF policy, for example, there was widespread agreement amongst the fishers that they received inadequate support from MCM to make the TURF system work: 'There was never a TURF system – most of the zones were being shared with other people. And no one from MCM came to us to strategise and to make it work.

We were expected to do it all ourselves – it was totally unrealistic' (A19). Animosity towards MCM grew over the years, particularly as formal fishers argued that they were 'penalised' with quota cuts while the informal fishers continued to fish with impunity (A1).

Although there was an expectation by MCM that the abalone fishers, and their communities, would protect their zones (DEAT 2005), most fishers felt that this was far from reality. In addition to the informal fishery becoming highly organised, and 'out of our control' (A5), fishers also expressed a reluctance to stop informal fishers who they knew as family or friends (A3, A9, A14, A19, A20). They justified the informal fishery on political grounds, arguing that fishers were unjustly excluded from the rights allocation process, and that MCM had not intervened to provide employment or other economic opportunities. As one fisher argued: 'MCM never came to us to ask us "how can we assist to help you to make your area viable?"' (A28).

Centralised decision-making was particularly evident during the process leading up to the closure of the commercial abalone fishery in February 2008. All informants adamantly stated that they had not been adequately consulted on this decision and that closure of the commercial fishery would not save the abalone resource anyway. Some argued that this process was a reflection of how decisions had been made all along. One formal fisher explained:

> 'They close Dyer Island and Betty's Bay Reserve for the commercial divers but they open them for the poachers. What is the government doing? I don't understand it? Who is the government making the decisions for? The abalone or the people? If they close the fishery for 20 years they do it so that my child will see an abalone in 20 years time. But what about now? What about my family now? They close it and there still won't be abalone in 20 years time because the poachers will have taken it' (A1).

Thus, with a burgeoning informal trade, coupled with an uncertain future, many of the formal fishers chose short-term economic gains through the informal trade. The economic drivers, therefore, relate to both need and greed. In terms of 'need', formal fishers in both case studies argued that the lack of security in fisheries (due to

decreasing TACs), economically unviable quotas, and limitations on the number of species that they are permitted to harvest, all contributed to economic instability at an individual level. Although there was the recognition that many of the formal fishers were engaging in the informal trade, some argued that this was largely occurring on a small-scale: 'a lot of the guys are doing it because they need the money. Our quotas have decreased and there are school fees to pay. But they are scared of losing their quotas – they won't take big chances. It isn't big scale – they just do what they need to do' (A14). On the other hand, some argued that there were fishers making big money: 'It is about greed. They are used to living a certain lifestyle and can't say good-bye to it. We could live from the original quotas – but it wasn't enough for them' (A1). Thus, the economic incentives, from different perspectives, were key drivers to engaging in the informal fishery.

In the formal WCRL fishery similar drivers were emerging, albeit at different scales. For example, there was widespread dissatisfaction with the level of engagement between the commercial fishery and MCM (Branch *et al.* 2007, L42, L43, L44). Government decision-making around the allocation of rights was considered highly problematic, not only in terms of the number of people that were excluded, but also in terms of the institutional arrangements that were set up to gain access to the fishery. Joint venture agreements, and the establishment of small companies with many shareholders, often resulted in economically unviable businesses. With annual cuts in the commercial TAC since 2005, there is a fear that economic instability will fuel increased engagement with the informal trade (L2, L31). One informal fisher justified the activities of the commercial fishers by stating: 'some of the guys are only shareholders in a company. The directors get all the money and they are left with nothing. They are lucky if they get into a boat. They bring us tails because that is what makes ends meet' (L13).

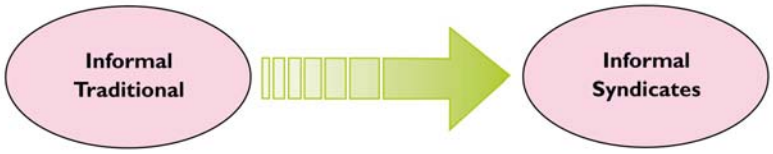
This economic instability of small-scale fishers was further threatened by the government decision to prohibit them from accessing a 'basket' of marine resources, or from pursuing supplementary income. Policies on the allocation of long-term rights specifically limited other forms of employment, and limited access by restricting the variety of species that could be harvested (DEAT 2003, 2005). These policies, however, immediately contradicted historical fishing practices, in which different

species were harvested at different times of the year, or other income-generating activities were pursued as a means to compliment livelihood strategies (Isaacs *et al.* 2005, Sowman 2006, Sowman *et al.* 2008). For those fishers who have struggled to diversify their income, the informal fishery has been an important source of additional income (L1, L48).

Even in other less lucrative fisheries in South Africa, the formalisation of small-scale fishers has been problematic in terms of institutional arrangements. A key assumption of MCM is that once rights have been allocated, fishers will take greater responsibility of fish resources and compliance will result (L52, L53, Tarr 2000). However, even in fisheries where a co-management approach is adopted, the perceived economic need to harvest marine resources is often prioritised over other laws (agreed upon or not). Some of the mussel collectors in KZN, for example, expressed concern that they were only permitted to harvest mussels twice a month, which did not meet their basic needs (Hasler 2006). Thus, in KZN, alternative sources of income were considered key to diversifying livelihoods and sustaining co-management arrangements (Clark 2006b). Similar findings were also found in other provinces, but few functioning co-management arrangements are present outside the province of KZN. In the Eastern Cape Province, for example, centralised decision-making exists, with little legitimacy of the management system or its rules (Calvo-Ugarteburu and Raemaekers 2007, Raemaekers *in prep*, Sowman *et al.* 2008).

Thus, although an effort has been made in South Africa to allocate access rights to traditional fishers, the process of this allocation, coupled with ineffective institutional arrangements, have largely alienated small-scale fishers from management. In the case studies outlined above, fishers have either questioned the legitimacy of the rules or they have questioned the legitimacy of the management authority, which they perceive to be ineffective and unjust. Due to the exclusion of some traditional fishers, the newly formalised fisheries were not considered legitimate by some of the fishers, and this undermined the institutional arrangements proposed to govern them. Centralised decision-making contributed to the fishers' inability and unwillingness to exert the necessary social controls to mitigate the informal fishery. Finally, the economic drivers that relate to both need and greed significantly influenced fishers' decisions to supplement their income through the black market trade.

3.4 Key Drivers Influencing the Shift from an 'Informal Traditional' Fishery to 'Informal Syndicates'



The transition from the informal traditional fishery to one that is highly organised and dominated by syndicates is particularly relevant for the abalone fishery. By monitoring this fishery for more than a decade (Hauck 1997, Hauck 1999a,b, Hauck and Hector 2003), the researcher has observed the evolution that has taken place. While the abalone fishery may be unique in its level of sophistication, and considered 'the most organised illegal fishery in South Africa' (A49), there are signs in the WCRL fishery that a similar evolution could occur. Further, other less lucrative fisheries in South Africa may also lead to the creation of informal syndicates. Although at a smaller scale in terms of economic value, market demand and level of organisation, they are also impacted by the involvement of outside opportunists who establish a black market trade for economic gain.

The key drivers that have emanated from the case studies are both political and economic. The political drivers relate again to the inequitable laws that have excluded traditional fishers from the formal fisheries. With growing animosity and defiance towards the state, fishers have turned to highly organised operations, with little to lose. Coinciding with political transformation in the fisheries, growing markets provided the opportunity for high economic gains. Thus, in recognising the high profits to be gained by trading marine resources on the black market, outside opportunists emerged in the fisheries. These drivers, coupled with weak law enforcement, fuelled an informal trade – with few risks.

The abalone fishery, of course, is the classic case study in this regard, highlighting the transition from a highly politicised informal traditional fishery, to one that is now dominated by powerful groups involved in other illegal activities (such as the drug trade – Steinberg 2005). Interestingly, within coastal communities, and between the resource users themselves, there is a moral distinction that has been made between

those informal fishers who are 'legitimate', because they are protecting their rights, and those who are not, because they are in it for big money (Hauck 1997, Hauck and Nursey-Bray 2002; A1, A2, A11, A13, A15, A54).

This is best highlighted through the proposal that was developed by the Abalone Rights Holder Association (ARHA) in 2001. Although the proposal recognised a suite of challenges, it was an attempt to bring stakeholders together to legitimise the fishery and recognise traditional rights of fishers who had been excluded from the fishery at the time. This proposal, however, received no government response, despite months of deliberation and negotiation in the coastal communities affected. Interestingly, this proposal clarified the distinction between informal fishers who were considered legitimate and those who were not. It stated the intention to create an ally between traditional informal fishers, the formal industry and MCM, in order to address the encroachment of outside syndicates and build a strong formal fishery. Thus, it recognised the need to build a fishery based on legitimacy, which acknowledged the rights of traditional fishers at the same time as building cohesion, in order to keep outsiders out. A current formal fisher, who had been an informal fisher at the time and had worked closely on this proposal stated: 'I felt proud about the fact that we all sat together and developed that proposal. It would have worked and this fishery would be different today. But nothing came of it – MCM never accepted it' (A15).

Although the new abalone policy of 2003 broadened formal access to the resource, many fishers still claim that too many key people were left out (A1, A3, A14, A15, A19, A23, A28, A30). This conflict with the rights allocation process coincided with a growing Asian demand for abalone, which provided an economic incentive for the informal trade to grow. With rising prices, and a favourable exchange rate, abalone became a highly lucrative resource. The economic opportunities associated with informal abalone fishing began to attract wider role-players, with interests in high economic gains and low perceived risks. As a result, the fishery effectively became open access as fishers and opportunists (including gangs and international syndicates) worked together to feed consumer demand. The entry of outside syndicates occurred at a time when there was political uncertainty around access and stewardship of the abalone resource in the early 1990s. With no long term incentives to protect the resource, coupled with bigger markets and higher prices, syndicates forged

relationships with fishers in local communities as a means to develop highly organised operations.

Further, there was widespread acknowledgement that law enforcement was weak, with many fishers arguing that the authorities should have focussed on targeting the growing number of opportunists entering the fishery. However, there were innumerable stories of corruption, many from informal fishers who had personal experiences. One fisher, who had been heavily involved in the informal sector provided a detailed description of his perception of the market and his exposure to corruption:

> 'You will never stop the poaching. The market will always be there. There are too many people involved – including the police and the inspectors – and the money is too good. You get someone out of the system and someone new will come in…It is not unusual for law enforcement to make R10 000 a night. We had contacts everywhere – including the red patrol boats. If we went out to Dyer Island we would tell them to stay on one side of the island – then we would call them to tell them we were finished and they would move to the other side. If they were getting pressure to move around the island – they would call us and tell us to scoot. Technology is great! With cellphones it is so easy now. Anyway, there are people in MCM who are well connected to the poaching – while they are in place it will be impossible to stop the poaching' (A34).

The informal lobster fishery has not reached the widespread level of organisation that is evident in the abalone fishery. Although there have been reports of highly organised operations through the formal fishery (Hauck and Kroese 2006, Le May 2002), and suspicion of black market lobster channelled through formal factories (L32, L39, A49), the bulk of the informal trade is targeted at the local market. A domestic demand for lobster has a long history (van Sittert 1994), and has important cultural significance for many Western Cape families (L1, L4, L23, L56). In addition, with a booming tourist industry, hotels, restaurants, wine farms and caterers turn to the informal fishery to supply them with lobster that they are reluctant to purchase from high-priced formal suppliers. The informal fishers in Hangberg indicated that

there was an ongoing demand for their catch and they were never in a position where they couldn't sell the lobster that they had harvested.

The involvement of outsiders in the informal WCRL trade since the 1970s has been mentioned by van Sittert (1994), who particularly referred to the recreational fishers, and other opportunists, who saw the trade as an extra source of income. Formal networks began to develop in order to ensure a regular supply to the market. The scale of operation in the informal lobster trade is varied, ranging from organised middlemen, with regular suppliers and markets, to subsistence fishers willing to risk selling their lobster on the road in order to put food on the table. There is significant animosity toward MCM in terms of fishing rights, and the sentiment is that 'if they don't let me benefit from fishing legally, then I will do it illegally. What do I have to lose?' (L18).

This statement is directly linked to the potential to grow the informal trade. The sentiments of the fishers in Hangberg were not very different from those of the informal abalone fishers in the mid-1990s (Hauck 1997). As one informal lobster fisher explained: 'lobster is moving in the direction of abalone. We are saving for rubber ducks so we can fish in the deep water. We won't stop. We have the same problem as the abalone guys – we want fishing rights' (L20). There is certainly a willingness to develop bigger operations, and to export lobster for higher prices, if the opportunities present themselves. One fisher explained that there was so much anger amongst the fishers that their ethic has changed: 'the guys don't care anymore. They take undersize or females in berry – Fuck MCM is what they have to say. They will take any opportunity they can get!' (L1).

Other small-scale fisheries in South Africa have also been exposed to outside middlemen and markets that increase incentives to local fishers, and others, to supply demand. As Mann (2003) explains of the gillnet fishery in Lake St. Lucia in KZN, '…there is a well-established poaching network. Many netters supply fish to middlemen who come into the area with light delivery vehicles, pick up large quantities of fish and sell these for considerable profit in markets further afield…' (p. 109). The transition from subsistence based activities, to commercialisation of marine resources for sale, has been highlighted as a concern in terms of market demands and

pressures from outside buyers (Kyle 2003, Steyn *in press*). A decision to prevent the small-scale sale of the east coast rock lobster in KZN, however, has simply driven the harvesting and sale underground (Kapfudzaruwa *et al.* 2008). It seems clear that there is an increasing demand for fish and fish products in South Africa, which is a worldwide phenomenon (Ahmed *et al.* 2006, Dietz *et al.* 2003). Thus, with growing markets, the resultant economic incentives, few controls and the political marginalisation of small-scale fishers, South African fisheries are vulnerable to organised syndicates. Despite the different scales, movement of fisheries in the direction of syndicates seems to be taking place (as outlined in Figure 7.2), posing significant challenges, and repercussions, for marine resources, and the *bona fide* fishers that depend on them.

This section has highlighted the complexity of understanding the various factors that influence fisher behaviour. Key drivers of change have been identified through an analysis of the combination of factors that lead to a shift in the nature of the fishery system over time. This analysis has clarified why shifts have taken place between the informal and formal fisheries. The key trend emerging in the case studies, and which may be applicable more broadly, is that fisheries are moving towards more organised informal syndicates. The next phase of this analysis, however, is to explore whether it is possible to prevent this trend from continuing. In order to do so, it is necessary to revisit the conceptual framework developed in this study, as well as the theoretical ideas informing the framework, and identify the principles that should be guiding an alternative and more integrated approach to fisheries compliance. The section that follows will identify and discuss these principles, which it is argued are critical to understanding and addressing small-scale fisheries compliance in a more holistic and integrated manner.

4. THE UNDERLYING PRINCIPLES OF SMALL-SCALE FISHERIES COMPLIANCE

In attempting to understand the factors affecting compliance behaviour in the case studies investigated, a number of key principles have emerged. The remaining section of this chapter, therefore, will discuss these principles and highlight their importance

to understanding and addressing small-scale fisheries compliance in South Africa. In addition to the South African experience, however, the international literature has also been drawn on to emphasise the importance of these principles within a broader context. Figure 7.3 highlights these principles, which have, as their foundation, equitable laws and policies. Further, it is argued that the core principle for achieving compliance is social justice. This encapsulates the concept of human rights, and more specifically, the critical importance of acknowledging and protecting customary fishing practices and the livelihoods of fishers. Emanating from social justice is the principle of legitimacy, which in its broadest sense reinforces the importance of moral support for the institutional arrangements developed to govern a fishery. Finally is the principle of deterrence, which is identified as key to reinforcing laws and rules, and in enhancing the legitimacy of the management system. Thus, both the normative action and rationalist approaches to compliance are highlighted. Fundamental to an understanding of Figure 7.3, however, is that before the principle of deterrence can have effect, legitimacy needs to be in place, and before the concept of legitimacy can have effect, the principles of social justice need to be embraced. Underpinning all of this is the acknowledgement that none of these principles can be adopted without a supporting legal and policy framework.

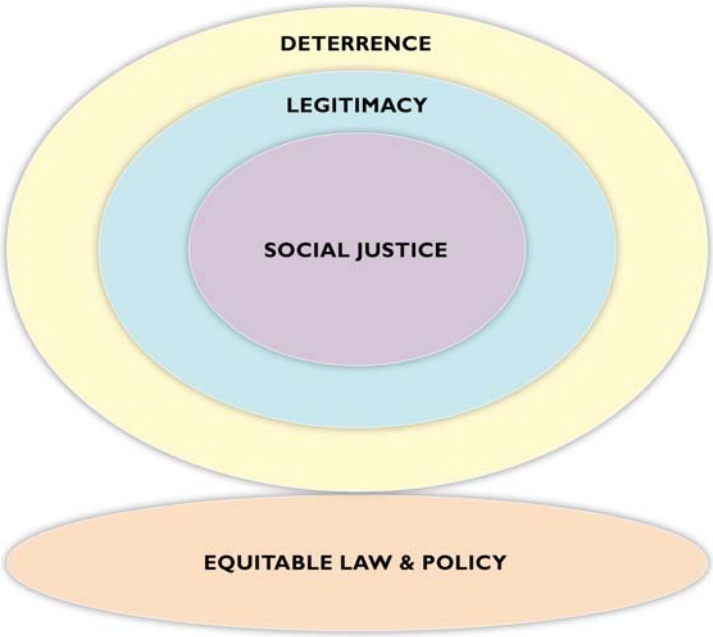


Figure 7.3: The underlying principles required to guide a more integrated approach to small-scale fisheries compliance

4.1 Equitable Policy and Law

Following the democratic elections in South Africa in 1994, the country embarked on a radical law and policy reform process (Glazewski 2000). Underpinning this process was the enactment of the Constitution in 1996, which promoted a human rights based approach that was guided by the Bill of Rights (Witbooi 2006). As discussed in Chapter Three, this legislation provided the backbone for all other sectoral laws and policies, including those related to the environment, and management of natural resources. The National Environmental Management Act (NEMA 107 of 1998), which guides environmental governance in the country, promotes the principles of sustainable development. The Act advocates:

> 'the promotion of equitable access to environmental resources to meet basic needs and ensure well-being, in accordance with the environmental right, including taking special measures to ensure access by previously disadvantaged persons. [It] further endorses the participation of all interested persons in environmental governance and promotes decision-making that takes into account the interests and needs of affected parties' (Witbooi 2006: 36).

All organs of state are therefore bound by these principles of NEMA when making decisions related to any environmental law, including fisheries law.

Thus, the development of new fisheries law, which led to the MLRA in 1998, embraced a number of the core principles outlined above. Most critically, the MLRA emphasised the need to 'restructure the fishing industry to address historical imbalances and to achieve equity within all branches of the fishing industry' (Section 2(j)). Additional objectives included ensuring the ecological sustainability of marine resources and promoting the economic stability of the fishing industry through economic growth and employment (Witbooi 2006). Although these objectives are all important, the reality of balancing them in practice has proved challenging and controversial (van Sittert *et al.* 2006), which will be discussed further in Section 4.2 below. Another important section of the MLRA was the identification and definition of 'subsistence fishers', but problems emerged in practice when the definition proved to be too restrictive (Sowman 2006).

In addition to this new fisheries law, South Africa has also supported a number of international and regional agreements that are particularly relevant to small-scale fisheries management. The United Nations Food and Agricultural Organisation (FAO) Code of Conduct for Responsible Fisheries is voluntary, but is an influential policy document (Witbooi 2006). In its general principles, it specifically stipulates the rights of small-scale fishers:

> 'Recognising the important contributions of artisanal and small-scale fisheries to employment, income and food security, States should appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction' (FAO 1995: Article 6: 18).

In the regional context, the Southern African Development Community (SADC) Protocol on Fisheries came into force in 2003 when it was approved in South Africa's Cabinet, but it has not yet been ratified by Parliament (Witbooi 2006). Key goals of the Protocol include food security, economic opportunities and sustainable livelihoods of fishers, sustainable use of marine resources and the alleviation of poverty (Article 3). In terms of small-scale fisheries, it specifically emphasises that State Parties shall institute:

> 'legal, administrative and enforcement measures necessary for the protection of artisanal and subsistence fishing rights, tenure and fishing grounds; and [take] particular account of the needs of socially and economically disadvantaged fishers' (Article 12(1)).

Further, the Protocol states that when an aquatic species or habit is endangered each State Party, among other things, is to 'seek alternative economic activities for those whose livelihoods impact on the survival of the species' (Article 14(4) (d)).

These laws and agreements provide a strong foundation with which to develop effective small-scale fisheries management policies. The overarching principles, in particular those of social justice and environmental sustainability, emphasise the need

to protect marine resources as well as the rights and livelihoods of fishers. Thus, it is argued here that a strong legal foundation exists in South Africa to establish equitable policies and laws for small-scale fisheries. However, although environmental law embraces these principles, there are still inequities, driven by power imbalances that need to be addressed in the fisheries sector. Many of the social justice principles in the FAO Code of Conduct and the SADC Protocol, for example, that emphasise the preferential rights of small-scale fishers, are not recognised nor incorporated into domestic fisheries law. The challenge of balancing the objectives of social equity, environmental sustainability and economic stability, as outlined in the MLRA, remain problematic. The realities on the ground, as highlighted by the case studies, indicate that there is still a long way to go in protecting the rights of small-scale fishers. Fisheries legislation needs to be broadened to reflect the principles outlined above (Cullinan *et al.* 2005). The recognition by the Minister of DEAT, for the need to embark on a new small-scale fisheries policy for South Africa, is a very important step to enable the incorporation of these key principles into future fisheries law and policy.

4.2 Social Justice

The lack of integration of the objectives of the Bill of Rights, contained in the Constitution, into the fisheries sector is highlighted by MCM's resource-management approach to fisheries, in which the objectives of environmental sustainability are prioritised. Although it is acknowledged that inshore marine resources are limited, and decreasing in some cases (Branch and Clark 2006), the broadening of access rights should include socio-economic considerations, including how resources are allocated amongst sectors, as well as scientific ones (Martin and Raakjær-Nielsen 1997). The allocation of subsistence and limited commercial rights, therefore, which was based on resource characteristics rather than on the socio-cultural practices adopted by fishers to sustain their livelihoods, has been highly problematic from the start (Cardoso *et al.* 2005, Isaacs 2006a, Sowman 2006).

The incompatibility between the needs of traditional fishers and the natural limits of marine resources reflects the significant challenge of identifying a number of

objectives within law that conflict in practice. This is glaringly apparent with macro-level laws that have been developed in democratic South Africa, which promote social, economic and environmental objectives. These objectives have also been incorporated into the MLRA, but in practice: 'the evolutionary pursuit of social equity is always powerfully opposed by the conservative demands of sustainability and stability' (van Sittert *et al.* 2006: 97). This challenge of balancing competing objectives in fisheries management is acknowledged internationally, and Hanna (2003) argues that it is ultimately a 'search for balance in the distribution of authority and power' (p. 309).

In addition to the role of Apartheid policies in marginalising fishers by race, van Sittert (2002a,b, 2003) argues that the history of South African fisheries also needs to be understood in relation to the role of large capitalist interests in marginalising small-scale fishers. He states that despite attempts at fisheries reform, in both the 1940s and 1990s, which promised the redistribution of marine resources, both processes in fact established big capital's power over the fisheries (van Sittert 2002a). This is emphasised by the fact that following implementation of the MLRA, internal transformation in the fishing industry simply entrenched 'endemic inequality in the fisheries by raising up a black capitalist class alongside the white in the name of redistribution' (van Sittert 2002a: 302). This resulted in the 'blackening' of the fishing industry, while the interests of the state and big industry remained aligned, and traditional small-scale fishers remained marginalised (Croeser *et al.* 2006, Isaacs 2006a, Isaacs *et al.* 2007, van Sittert *et al.* 2006). The power of capitalist interests was affirmed through victorious court cases, in which big industry managed to secure its rights to marine resources (Witbooi 2006).

This issue of conflicting policies has emerged in many fisheries around the world, with preferential policies that favour large-scale, industrialised fishers over small-scale, traditional ones (Fisheries Coalition Action Team 2001, Ghee 1990, Gupta and Sharma 2004, Mathew 1990, McGoodwin 1987, Silvestre *et al.* 2003, Sunderlin and Gorospe 1997). This problem was identified as a key issue by the FAO Advisory Committee on Fisheries Research: 'One of the main policy thrusts in the past has been to promote economic growth at a national level, based on the assumption that all sectors of society (including small-scale fishers) will benefit. In fisheries, this has

tended to favour the development of large-scale approaches over small-scale ones and the resources being concentrated in fewer and fewer hands' (2003: 9). As Platteau (1989) explains, many governments in developing countries in the 1950s and 1960s initiated modernisation programmes, with resources being absorbed in the industrialised fisheries at the expense of the small-scale sector.

An understanding of social justice in South Africa requires an understanding of the historical role of government, and other powerful elites, in developing laws and establishing socio-economic policies. The two sub-sections below will discuss two critical aspects of social justice that were particularly highlighted through the empirical research. These are the importance of protecting customary use rights of fishers, and ensuring stable and sustainable livelihoods.

4.2.1 Protecting Customary Rights

The allocation of fishing rights is fundamentally a political issue (Hoel and Kvalvik 2006). Jentoft and McCay (2003) argue that it is therefore necessary to understand political influences by asking: 'who are the stakeholders and what are their political assets, how are public and private interests played out, how do unequal distribution of power among stakeholders and user-groups impact on decisions made, and who benefits and who loses from fisheries management' (p. 302). In South Africa, the case study research has emphasised the reality that allocating rights to some fishers has deemed them 'legal', while others who have been excluded have been deemed 'illegal'. The latter group of fishers are therefore considered 'poachers', and sanctioned through law enforcement measures. As the fishers themselves explain: 'government has turned us into criminals because they won't let us fish what is rightfully ours' (L28; with similar sentiments expressed in Branch *et al.* 2007, Hauck *et al.* 2002). The process of criminalisation is discussed in criminological literature, and it is widely recognised that power, and the interests that it protects, plays a critical role in identifying that which is considered 'legal' or 'illegal' by the state (Lynch and Stretsky 2003, White 1999, 2003). Further, the relations of power influence policies, which prioritise some objectives over others, often further marginalising the powerless (Barton *et al.* 2007a,b, Scraton 2002, Scraton and Chadwick 1991). This

has already been discussed above, and will be picked up further below in the discussion on livelihoods.

What is important to emphasise here is that political decision-making that is based on an unequal distribution of power is likely to lead fishers to break rules that are imposed on them (Jentoft and McCay 2003). The economic and political power of large commercial companies and the state has been highlighted through the case study research, emphasising how these interests have been entrenched to the detriment of small-scale fishers. As a result, traditional fishers who have been excluded from accessing formal rights continue to harvest marine resources despite it being 'illegal' to do so. From the fishers' perspective, there is no moral obligation to obey formal law as they perceive it to be unjust. Customary practices, therefore, are perceived as rights that should be protected and sustained through formal legal processes. The FAO (2005a) argue that 'recognising the existing rights of fishing communities is a fundamental element in building a successful fisheries management system. Doing so provides a basis of legitimacy, which can significantly enhance system compliance' (p. 41). Therefore, what is argued in this thesis is that without this recognition of fishers' rights in law (i.e. social justice), resistance to state-driven rules and regulations will persist (Hernes *et al.* 2005).

In South Africa, although important attempts have been made to reallocate rights to small-scale fishers through the subsistence and limited commercial fisheries, this has been limited due to a prioritisation of the historically favoured commercial and recreational sectors (Sowman 2006). As a result, political will is required to provide preferential rights to small-scale fishers, which is highlighted in international and regional agreements, and specifically recommended by the SFTG (2000). The fact, for example, that many traditional fishers remain excluded from formally accessing marine resources while there are an estimated 750 000 recreational fishers operating along South Africa's coast (Branch and Clark 2006) needs to be explored. A further anomaly exists in the WCRL fishery, where for example, an interim relief permit for 1230 traditional fishers is being challenged, yet there are an estimated 65 000 recreational permits issued each year (Shannon *et al.* 2006). This needs to be questioned at a political level.

Although the idea of reallocating rights across three sectors in South Africa (commercial, recreational and small-scale) is not a simple task, and will require social and economic considerations, the fact remains that the rights of traditional fishers (which are enshrined in South Africa's Constitution) are currently being undermined (Sowman 2006). By being defined as 'illegal' or 'criminal', marginalised groups (such as small-scale fishers) are being criminalised by powerful groups who are protecting their own interests (Box 1996, Chambliss 1975, Scraton 2002). South Africa's long history of inequality needs to be acknowledged, which has left a legacy of coastal poverty, an imbalance of power between large-scale and small-scale fisheries, racial segregation, land dispossession and unequal distribution of natural resources (Glavovic and Boonzaier 2007, Harris *et al.* 2007, Hauck and Sowman 2005, Hersoug 2002, van Sittert 2002a,b). Thus, the concept of social justice in fisheries cannot be ignored by fisheries managers, but 'must be addressed from the very beginning' (Hernes *et al.* 2005: 105).

4.2.2 Sustainable Livelihoods

Conflicting policy objectives, as discussed above, need to be emphasised in relation to the livelihoods of small-scale fishers and their right to meet basic needs. The powerful interests of big industry, to benefit from neo-liberal policies and the export-orientated focus of fisheries policy, needs to be understood in this context of social justice. A national prioritisation of neo-liberal economic policies in South Africa has had a broad and significant negative impact on poverty and livelihoods (UNDP 2003). The ANC had proposed socio-economic reform through its Reconstruction and Development Programme (RDP) in 1994, but ultimately abandoned its underlying principles by subsequently adopting the Growth, Employment and Redistribution Strategy (GEAR), which promoted economic growth, foreign investment and privatisation (Croeser *et al.* 2006, Isaacs *et al.* 2007, van Sittert *et al.* 2006). The result is not the radical intervention of the state in poverty alleviation, as expected through the transition to democracy, but rather an emphasis on capital production, which was assumed to 'trickle down' economic benefits to the poor in the form of employment (Isaacs *et al* 2007). Poverty and inequality have in fact increased in South Africa since democracy in 1994 (May and Meth 2007, UNDP 2003).

Thus, with vulnerable livelihoods, and few economic alternatives, small-scale fishers in South Africa are increasingly relying on marine resources for food security and basic income (Cardoso *et al.* 2005, Hauck *et al.* 2002, Sowman and Cardoso *in prep*, Sowman *et al.* 2008). Further, the biophysical factors that were discussed in the case study chapters have also impacted on livelihood strategies. Environmental variability and the resulting impacts of these natural system changes, including the seasonality of fish species, may significantly affect income and food security. Traditional fishing practices, therefore, often incorporated harvesting a 'basket of resources' that would involve fishers harvesting different species at different times of the year in response to availability, seasons and weather (Clark *et al.* 2002, Masifundise 2003). However, small-scale fisheries rights allocation policies have discouraged this diversification (DEAT 2003, 2005). Therefore, it is argued that the objectives of resource sustainability *cannot* be achieved without ensuring the sustainability of fishers' livelihoods (Sowman *et al.* 2008). This is emphasised by Chuenpagdee *et al.* (2005), who explicitly state that 'social justice is directly related to power and poverty' and in order for fishers' 'to make a living when no alternative sources of employment are available and one's bargaining position is weak, the only response…is for fishers to increase their fishing efforts' (p. 33).

Similarly, in his ethnographic study of two fishing villages in Norway and Canada, Gezelius (2002, 2003) explained that the perceived *economic need* to violate formal rules of the fishery resulted in no moral obligation within the collective to abide by that rule. Thus, he argued, the social and economic wellbeing of individual fishers, as well as the future of the community (in recognising that fishing is an important social, cultural and economic activity), were recognised as 'rights', and the importance of securing these rights were 'regarded as a moral buffer against the obligation to obey the law' (Gezelius 2002: 312). The same can be said for small-scale fishers in South Africa. Until their human rights are secured, and sustainable livelihoods are achieved, they will remain disenchanted with formal laws and policies, and they will 'vigorously defend perceived traditional rights', even if it is illegal to do so (Cardoso *et al.* 2005: 35). The fact that there are significant resource constraints, however, needs to be recognised, and supplementary income-generating activities should be explored. The identification of complimentary livelihoods has been highlighted as a

critical aspect of sound fisheries management, in order to sustain fishers' livelihoods, reduce pressure on diminishing resources, and limit vulnerability during times of resource shortage or due to environmental variability (Allison and Horemans 2006, FAO 2005a).

4.3 Legitimacy

Legitimacy is directly linked to the principles underpinning social justice. As Hernes *et al.* (2005) explain, if a management system is considered 'unjust', fishers are likely to resist it: 'in order to be legitimate, [fisheries] decisions must satisfy some basic criteria – or principles – of justice' (p. 105). Thus, legitimacy is increasingly being recognised as an important variable influencing fisheries compliance. There are many case studies around the world that have emphasised the importance of developing fisheries rules that reflect the norms, values and beliefs of fishers, in order to enhance legitimacy, and it is argued, compliance (Acheson 1998, Acheson and Gardner 2004, Bavinck 1996, Berkes *et al.* 2001, Dietz *et al.* 2003, Gezelius 2002, 2003, 2004, Kuperan and Sutinen 1998, Ostrom 2000, Raakjær-Nielsen 2003, van Ginkel 2005). If rules are considered fair, social mechanisms will often develop to ensure adherence to these rules (Berkes 1987, Ostrom 2000). However, if formal laws conflict with customary practice and morality, as discussed above, an obligation to comply with formal laws is eroded (Gezelius 2002, 2003, 2004, Jentoft 2000).

In South Africa, the social factors that play a role in enhancing compliance are often weak. This is due to a combination of fishers perceiving laws to be illegitimate, fishers perceiving moral beliefs as 'rights', which they are willing to defend even if they are contrary to formal law, and a breakdown of social cohesion within some user groups and coastal communities. Some key informants participating in this study felt strongly that 'fisheries transformation' in South Africa (since 1994) exacerbated divisions and conflicts within coastal communities. As one fisher explained: 'by allocating individual rights in traditional fishing communities, some people got access and others didn't. This created an ethic of each person out for themselves, which took away our culture of fishing and led to competition and animosity' (A35). Thus, the case studies, as well as other research, indicate that many small-scale fishers do not

believe that their needs and values are incorporated into fisheries management systems (Hauck *et al.* 2002, Isaacs 2006a, Masifundise 2003). Without adequate recognition of these values, the legitimacy of the management system erodes.

Fundamental to any fisheries system are the institutional arrangements, which are the rules and structures in place to manage resource use (Ostrom 2000). Key to an understanding of institutions, however, is the recognition that they are not developed in isolation of other factors, but are in fact embedded in social, economic, political and ecological realities (Acheson 2006, Jentoft 2004a,b, McCay 2002). Thus, institutions are a fundamental component of the management system, and crucial to getting them 'right' is ensuring that they are 'ethically sound and socially just' (Jentoft 2007: 361). Further, Jentoft (2004a) argues that 'fisheries management institutions must work from the realisation that they are nested in social structures, moral norms and values that impinge on them' (p. 94). Institutions therefore, fundamentally govern fisheries resources by creating the limits – and incentives – to ensure sustainability (ecologically, socially and economically) (Charles 2001, McClanahan and Castilla 2007).

It is argued that institutions are legitimate insofar as they are created through participatory processes, ensuring that the fishers who are affected by them are also directly involved in creating them (Berkes *et al.* 2001, Jentoft 1989, Ostrom 2000). The assumption is that by moving away from conventional, centralised management, stakeholders other than government (including fishers) share decision-making power, thereby leading to a greater acceptance of rules and norms. As Hall-Arber (2005) states: 'It is now almost a cliché to note that those who participate in the development of regulations are more apt to abide by them' (p. 144).

Fisheries compliance research has also identified cases where law enforcement is weak (usually due to lack of capacity and resources), and where penalties are low, but the majority of fishers still comply with the regulations (Gezelius 2003, Sutinen and Kuperan 1999). Thus, other than the small number of chronic violators, other factors have been identified that help shape compliant behaviour. These factors, which are shaped by the theory of normative action, include moral and social norms, social pressure, perceived legitimacy of the management authority and fisher involvement in

decision-making and management (Gezelius 2002, 2003, 2004, Hatcher *et al.* 2000, Hønneland 2000, Kuperan and Sutinen 1998, Kuperan *et al.* 1997, McKinley and Millington 2000, Raakjær-Nielsen 2003, Raakjær-Nielsen and Mathiesen 2003, Sutinen and Kuperan 1999). The co-management approach, therefore, has been implemented worldwide as one mechanism to enhance legitimacy in fisheries.

Significant experimentation, research and reviews have been undertaken on fisheries co-management around the world (Pomeroy *et al.* 2001, Wilson *et al.* 2003, Viswanathan *et al.* 2003), and some argue that it is *the* way forward for fisheries management (Gray 2005). However, the results of co-management are highly variable. Although some have argued that co-management arrangements are still relatively government-driven through top-down processes (Hara and Raakjær-Nielsen 2003), others argue that co-management has been successful in strengthening participation, self-regulation and compliance, and have contributed to improving fishers' livelihoods and resource sustainability (Ahmed *et al.* 2006, Castilla *et al.* 2007, McClanahan *et al.* 2008, Morenzo *et al.* 2007).

In South Africa, the analysis of fisheries co-management has also had mixed reviews (Clark 2006b, Hauck and Sowman 2003, Napier 2005, Sowman *et al.* 2003). Other than the province of KZN, small-scale fisheries remain driven by the managers and scientists in MCM, where a resource-oriented, command and control approach to fisheries has been adopted. Raakjær-Nielsen and colleagues (2004) refer to this as 'instrumental co-management', in which governments perceive co-management to be less about genuine participation and more about a means to reach its own objectives: 'when co-management was initiated, it created huge expectations for genuine participation and empowerment, but the practical adaptation of the co-management turned out to be business as usual and not an institutional reform' (Raakjær-Nielsen *et al.* 2004: 155).

Thus, although there is a great deal of international rhetoric to move towards participatory approaches to management, Symes (2006) argues that policy making in this regard is more apparent than real. He states: 'there is common concern that institutional changes are not keeping pace with the needs of the new forms of governance and that until these transformations are complete, power will remain in

the hands of the old oligarchy' (Symes 2006:116). This is the case in South Africa, where issues of power, and access to resources, remain pertinent issues to be addressed. As a result, what emanated from this research was that the legitimacy of institutional arrangements requires power imbalances to be addressed, equitable sharing of benefits to be achieved, and participatory institutional arrangements to be implemented.

4.4 Deterrence

The principle of deterrence ensures that the costs of prohibited actions are greater than the benefits of those actions. This emanates from an economic model of compliance, and rests on the assumption that rational individuals will comply with rules and laws if the perceived costs outweigh the benefits (Becker 1968). Thus, in fisheries, this principle has led to enhanced law enforcement mechanisms as a means to increase the costs, through the probability of detection and conviction (Sutinen *et al.* 1990). Although crime control models have largely been relied upon by States to impose fisheries compliance, it is increasingly recognised in the literature, as has emerged from this research, that there are other strategies that should be explored to address the underlying drivers of fisher behaviour (Gezelius 2002, 2003, 2004, Hatcher *et al.* 2000, Hønneland 2003, Kuperan and Sutinen 1998, Raakjær-Nielsen 2003, Sutinen and Kuperan 1999). Nevertheless, it is argued through the rationalist approach to compliance theory, that both formal and informal controls and sanctions are important for the small percentage of chronic violators in every fishery who are motivated by economic gain (Kuperan and Sutinen 1998, Sutinen *et al.* 1990). Further, the importance of enforcing rules has also been emphasised as a means to enhance the legitimacy of the management system (Gezelius 2002, Hønneland 2000, Tyler 1990). In common property theory, Ostrom (2000) and others (Dietz *et al.* 2003) have argued that there will always be 'free-riders', and there is a need to ensure that rules are enforced. However, what is emphasised in this study is that the enforcement of rules must first be based on the assumption that rules themselves are considered fair and just, and are therefore accepted.

If law enforcement is expected to enforce laws that are not morally binding, costs will be high. Although it is recognised that command and control methods are not economically efficient (Dietz *et al.* 2003), they are increasingly relied upon to enforce rules (Raakjær-Nielsen 2003), particularly those that are devised through top-down management strategies (Hanna 1995). However, as Levi argues, 'if an institution depends only on coercion for the successful implementation of its policies, the costs of enforcement will be unsupportably high' (1990; quoted in Jentoft 2004b: 146). Further, Gezelius (2002) warns, if the authorities are not enforcing the rules, the incentive for fishers to obey rules that have no moral integrity is diminished. The result, as is the case in many small-scale fisheries in South Africa, is that a largely open access system is in place, whereby both formal and informal fisheries are operating simultaneously. The centralised establishment of rules, which hold little legitimacy on the ground, is coupled with weak law enforcement, which translates to the state's inability to enforce the rules that it creates.

In South Africa, although fisheries law enforcement capacity has increased since 2000 – particularly in the area of special investigations (Hauck and Kroese 2006), there is widespread acknowledgement of its ineffectiveness on the ground. As a result, the law enforcement authority has little legitimacy, which is exacerbated by high levels of corruption. With the national police commissioner of South Africa arrested for corruption in late 2006[13], there are high levels of mistrust of enforcement agencies. Studies have indicated that half of South Africans have little or no trust in the police, and believe that most police officers are corrupt (Faull 2007). This lack of confidence in law enforcement, coupled with weak social controls emanating from illegitimate rules, has reinforced a 'culture of non-compliance' in which there is little moral obligation to comply. Furthermore, even when compliance authority was delegated to local level (such as to the MARINES and to SanParks), law enforcement personnel recognised the incompatibility of having to enforce rules that they, and local stakeholders, were divorced from creating (A46, A49, L33, L37).

However, an important distinction emerged in this research between those who are maximising gains from informal fishing (perceived to be making large profits) and

[13] The case against the police commissioner for fraud and corruption is still underway through the High Court of South Africa (Maughan 2008).

those who are simply relying on resources for their livelihood ('just getting by' or 'putting food on the table'). This distinction, between fishing for 'need or greed' (Hauck 1997), was also highlighted by Gezelius (2002, 2003, 2004). Gezelius explained that informal fishing as a result of economic need was generally tolerated by the community, whereas informal fishing that was practised for profit was considered unacceptable by the community and sanctioned. Thus, 'the fear of social degradation or exclusion from the collectivity was usually enough to prevent opportunistic, utility-maximising action beyond the law' (Gezelius 2002: 310). In South Africa, although it was recognised that high economic gain had motivated fishers to violate rules, social pressure was weak largely due to the perceived illegitimacy of the rules. However, in the abalone fishery for example, when outside opportunists emerged in the fishery, there was an increased acceptance of the need to enhance formal controls.

The ineffectiveness of formal law enforcement, however, was considered highly problematic by most stakeholders, and in fact led to the 'domino effect' in which fishers violated rules because they saw others getting away with it (Kuperan and Sutinen 1994, 1998, Sutinen *et al.* 1990). As Sutinen *et al.* (1990) explain, 'non-violators stand to lose out on the resource if much of it is taken by the violators, thus pushing them to violate as well' (p. 246). This was manifest in the abalone fishery, in which many formal fishers expressed their involvement in the informal trade due to the fact that informal fishers were continuing to fish with impunity, while their activities became increasingly restricted by the state. The importance of law enforcement to deter chronic violators, therefore, has been identified as important for reasserting the legitimacy of rules and regulations, and for enhancing the moral obligation of fishers to comply (Kuperan and Sutinen 1994, 1998, Raakjær-Nielsen and Mathiesen 2003, Sutinen and Kuperan 1999).

Thus, this research has emphasised two critical points in relation to law enforcement and deterrence. The first relates to the theory of normative action. It is unrealistic to expect law enforcement to address fisheries non-compliance if it is implemented in isolation of broader strategies that address the social, political, economic and cultural factors that are driving fishers to behave in the way that they do. The second incorporates the rationalist approach to compliance, emphasising that law

enforcement, and other informal controls, are necessary for deterring chronic, profit-maximising individuals, and for enforcing the legitimacy of the management system. Thus, while the monitoring and enforcement of rules have been identified as important for enhancing compliance, they need to be implemented through legitimate, socially valued institutions that are accepted and supported.

5. CONCLUSION

This chapter has aimed to consolidate and analyse the empirical evidence that has emerged from the case study research to highlight the key drivers and principles influencing small-scale fisheries compliance in South Africa. In order to do so, it has been necessary to reflect on both theory and practice to determine the underlying factors that influence fishers' behaviour. Key to this understanding is the recognition that compliance is influenced by a variety of different factors, driving decision-making differently in different circumstances, influencing shifts in the fishery system over time. The summary of the empirical evidence outlined in this chapter reaffirms the complexity of fisheries management, not only in terms of the natural and socio-economic systems themselves, but also in terms of the linkages between them over time. It is evident that in order to achieve the objective of resource sustainability, which seems to drive fisheries management in South Africa, it is equally important to ensure the sustainability of the economic, social and institutional systems that rely on, and influence the fishery. Resource limits need to be acknowledged at the same time as exploring the redistribution of access rights between sectors, and the feasibility of supplemental economic activities.

This interconnectivity between human and natural systems is widely acknowledged in other discourses related to environmental and human security (Buzan *et al.* 1998, Thakur and Newman 2004, UNDP 1994) and is directly embraced by new approaches to fisheries governance (Garcia *et al.* 2008, McClanahan and Castilla 2007, de Young *et al.* 2008). However, what underpins the small-scale fisheries compliance framework introduced at the beginning of this chapter, which may be applicable to fisheries compliance more generally, is that an understanding of compliance requires an understanding of power and law. Further, by applying this framework to case

studies in South Africa, the principles of social justice, legitimacy and deterrence have been identified as key to understanding and addressing compliance in a more integrated manner. By adopting these principles, it is argued that fisheries policies will shift away from a sole reliance on criminal justice approaches to achieve compliance, to a more integrated approach that aims to sustain the fishery system as a whole.

CHAPTER EIGHT

CONCLUSION

1. INTRODUCTION

Fisheries compliance theory has been developing since the 1980s (Anderson and Lee 1986, Sutinen and Andersen 1985), borne out of a concern for 'illegal fishing' and the over-exploitation of fish resources. Fisheries compliance thinking emerged from a rationalist perspective, in which fishers' behaviour is argued to be determined by the costs and benefits of their actions. Further research began to expand this thinking to include a theory of normative action, in which fishers' norms and values have been identified as important factors influencing their behaviour. It is widely recognised, however, that these two approaches are not mutually exclusive, but an integrated theory of compliance would include elements of both (Gezelius 2003). The aim of this thesis has been to contribute to this evolution of fisheries compliance thinking by developing a conceptual framework to better understand the factors that are influencing fishers to comply, or not, with formal rules and regulations. In order to do so, this study has focussed on the small-scale fisheries sector in South Africa. Few empirical studies on small-scale fisheries compliance have been conducted worldwide, which provides an opportunity for the findings from this study to be applied more broadly, beyond the South African context.

The importance of studying small-scale fisheries compliance has been highlighted internationally, as there is an increased recognition of the need to adopt new approaches to understanding and addressing compliance in this sector (Berkes *et al.* 2001). However, the trend worldwide is to continue to enhance law enforcement as the mechanism to achieve compliance. This was highlighted in Chapter One, with a discussion of the international focus on Illegal, Unregulated and Unreported (IUU) fishing. Despite the discourse of IUU fishing emerging from the industrial sector, and focussing on illegal fishing on the high seas, the concepts, approaches and interventions aimed at this problem are being adopted for the small-scale fisheries

sector. This is evident in recent studies conducted in Southern Africa (MRAG and CapFish 2008), which do little to differentiate the drivers of compliance between the industrial and small-scale fisheries. As a result, there is an emphasis on law enforcement as the primary strategy to address illegal fishing. This is reaffirmed in the South African context, where an increased reliance on crime control strategies has led to the assumption that more policing will lead to increased fisheries compliance. However, despite enhanced law enforcement efforts, and as clearly highlighted in the abalone case, inshore resources remain threatened (Cockroft *et al.* 2002, Branch and Clark 2006), fishers' livelihoods remain insecure (Cardoso *et al.* 2005, Sowman *et al.* 2008) and conflicts continue to erupt (as seen by the number of court cases). This highlights the importance of thinking differently about small-scale fisheries compliance, and developing a more integrated understanding of the drivers of fisher behaviour, and the approaches that are necessary to achieve a sustainable fishery system.

2. OVERVIEW OF THE STUDY

The overall aim of this study was to develop a conceptual framework for understanding and addressing small-scale fisheries compliance in South Africa. In order to do so, the research set out to address a number of objectives. They were: 1) to understand the nature of the small-scale fishery systems investigated, 2) to identify the factors that influence compliance behaviour in the context of these fisheries, 3) to analyse these factors, and how they interact, in order to determine the drivers that change the fishery system over time, 4) to identify the principles that are required to develop a more integrated approach to small-scale fisheries compliance, and (5) to contribute to fisheries compliance theory by fundamentally enhancing the debate to include issues of power and law.

In order to achieve these objectives, four approaches were adopted to guide the research. The first was systems thinking, which led to an investigation of the fishery as an integrated system, exploring the natural, social, political, economic and institutional factors influencing fisher behaviour. Other approaches included grounded theory and action research, which were fundamental to ensuring that the

collection and analysis of information were conducted through an iterative process, and that the research findings had practical implications for fisheries policy. In terms of grounded theory, the importance of analysing data and developing the conceptual framework in between trips to the field, ensured that concepts and ideas were emerging directly from information gathered, and were being refined over time. This process was important not only for contributing to theory, through conceptual development, but also for informing policy in the future, which needed to reflect the realities on the ground. Although the findings of this research contradicted many of the approaches currently adopted by South Africa's fisheries authority, Marine and Coastal Management (MCM), it has been important for highlighting new ways of thinking about compliance. As was discussed in Chapter Three, one of the key objectives of policy research is to influence the way in which governments think about old problems (Majchrzak 1984).

A further approach, which compliments those outlined above, is the use of qualitative research methods to undertake empirical research. Gezelius (2003) states that there is a scarcity of qualitative research in this field, and this study has highlighted the valuable information and rich insights that can be gleaned from this approach. Furthermore, the research process has identified that the development of relationships is a critical tool for studying 'illegal' behaviour, and this was facilitated through the qualitative methods that were employed to spend time with fishers and to build trust.

In addition to an overall review of small-scale fisheries in South Africa, which also drew on primary data, the focus of this research was on two case studies that were 'telling' examples for a study on fisheries compliance. The abalone and West Coast Rock Lobster (WCRL) fisheries have a history of traditional use with social, economic and cultural significance to many coastal communities. Furthermore, although at different scales, both fisheries have an established informal trade that is vigorously targeted through law enforcement interventions. In addition to these cases having particular relevance to theoretical development, they have also been important for contributing knowledge to two priority compliance issues in South Africa.

3. RESEARCH RESULTS: RETHINKING SMALL-SCALE FISHERIES COMPLIANCE

This thesis has argued that we need to think differently about understanding and addressing small-scale fisheries compliance. By drawing on empirical evidence, as well as the literature review, a conceptual framework has been developed that enhances existing compliance theory and proposes a more integrated approach to tackling compliance challenges. By applying the conceptual framework to two case studies in South Africa, key drivers for influencing fisher behaviour over time were identified and changes within the fishery system were understood. This then led to a clarification of the underlying principles that were identified in this research as necessary for understanding and addressing small-scale fisheries compliance. Each of these contributions, which have emanated from this study, will be summarised below.

First is the conceptual framework that was developed to understand small-scale fisheries compliance (see Figure 7.1). This framework encompasses two key concepts that have emerged from the research conducted in South Africa. The first is that law cannot be taken as a given. Rather than conducting research to enhance compliance of existing rules, this study argues that it is necessary to take the analysis of fisheries compliance one step further. This research has highlighted the importance of understanding how law has evolved, examining its history, and the power dynamics that have shaped it. Social and economic inequities that are found in laws and policies have been identified as significant factors influencing compliance behaviour of small-scale fishers in South Africa. Thus, it is argued in this thesis that existing laws that marginalise small-scale fishers need to be understood, and challenged, in an attempt to enhance fisheries compliance.

The second concept incorporated into the framework is the integration of the diverse factors that are influencing fisher behaviour. This has emphasised the need to understand compliance within a fishery system, acknowledging that social, economic, institutional and biophysical factors all impact on whether or not fishers' comply with rules and laws. Each of these factors will be briefly discussed below, but it is

important to emphasise that they are themselves influenced by power and law, which, as discussed above, need to be understood.

The social dynamics of fishers, the morals and norms that influence their behaviour, and the informal rules and sanctions that operate (or not) in existing fisheries have been important to understand. As emphasised by the cases in this study, fishing is a source of livelihood (socio-cultural and economic) that is embraced as a moral right, irrespective of formal law. The economic factors of the fishery system that strongly emerged from this study were the fragile economic circumstances of small-scale fishers and the influence of global and local markets on harvesting strategies. Further, this research emphasised that government policies that limit resource use, access to diverse species, and supplementary income, reinforce fishers' reliance on diminished marine resources. From an institutional perspective, fishers are influenced by centralised decision-making, weak law enforcement and lack of tenure. MCM's approach to fisheries management has largely alienated small-scale fishers and has exacerbated the illegitimacy of laws and policies, thereby weakening the moral obligation to comply. The biophysical factors that influence fisher behaviour relate to the natural characteristics of the fish resources as well as the environmental variability and ecosystem effects that occur. These factors influence fishing practices and can significantly impact livelihood strategies.

In addition to identifying the diverse factors that are influencing fisher behaviour, the conceptual framework further emphasises the need to understand the *dynamics* between these factors, and how they influence change in the fishery system. Thus, it has been necessary to determine the combination of factors, and their linkages, that drive the shifts in fisher behaviour between the formal and informal sectors. The research findings have emphasised the importance of understanding these drivers over time, in order for appropriate compliance strategies to be developed. It has further highlighted that MCM's reliance on law enforcement to address the perceived economic drivers of non-compliance, ignores the complexity of the various factors, and the interactions between them, in influencing fisher behaviour. A key concern in South Africa, emanating from this research, is that small-scale fisheries are shifting towards organised informal syndicates. The abalone fishery is largely dominated by this sector of the fishery, and the trend indicates that WCRL is moving in the same

direction. Thus, there is a need to question how this shift can be reversed away from informal syndicates as a means of establishing a sustainable fishery system.

The second key contribution of this thesis, therefore, is the identification of the underlying principles for understanding and addressing small-scale fisheries compliance in South Africa in a more integrated manner. These principles were identified from an analysis of the key drivers that influenced change in fisher behaviour in the two case studies, as well as from the theoretical ideas that informed the conceptual framework. It is argued that the core principle for achieving compliance is social justice, which ensures the protection of customary fishing practices in law, and facilitates the economic security of fishers' livelihoods. Linked to social justice is the principle of legitimacy, which reinforces the moral support for the institutional arrangements governing the fishery. The third principle is that of deterrence, which reinforces rules and laws and contributes to the legitimacy of the management system. Further, it is argued that each of these principles require an enabling legal and policy framework. The key concept underpinning these principles is that deterrence will have little impact without legitimacy, and legitimacy will have little impact without social justice. Thus, without social justice all other attempts to achieve compliance will have little long-term impact, and in some cases, may in fact exacerbate non-compliance and conflict.

Interestingly, these underlying principles that have emerged from the research reflect the theoretical developments in fisheries compliance theory. The principle of legitimacy is embraced by the theory of normative action, while the principle of deterrence is embraced by the rationalist perspective of compliance. The principle of social justice, however, has been highlighted in this research as an important concept that needs to broaden current compliance thinking. By challenging existing laws, and attempting to understand the history and power behind their development, an important analytical process has unfolded that has significantly contributed to an understanding of fisher behaviour in South Africa. While the concept of social justice has been emerging in fisheries discourse more broadly (Chenpagdee *et al.* 2005, Hernes *et al.* 2005), it is argued in this thesis that it needs to be adopted more vigorously into compliance theory. As Jentoft (2000) states: '…a management

system that cannot be defended on grounds of social justice is likely to be challenged, however solid its legal foundation' (p. 142).

The importance of adopting the principle of social justice in an understanding of compliance was emphasised in Chapter Three by drawing on criminological discourse. Criminologists have long been arguing that political factors, such as law and power, are critically important in our understanding of why certain activities are deemed to be 'illegal'. It is emphasised that the definition of 'crime' is often developed to protect the interests of powerful groups, which in turn criminalise threats to that power (Box 1996, Chambliss 1975, Scraton 2002). In the South African context, it is argued that harms in this country should not be constituted as crimes simply because they are defined as such by state law, but should be recognised and tackled by broader social policy in order to 'advance the cause of equality' (Dixon 2006: 187). Thus, the underlying factors, and drivers, of fisheries non-compliance need to be understood and tackled in a more integrated manner. Ongoing reliance on crime control models will only exacerbate inequities in the fishery system, further marginalising fishers and increasing pressure on resources. Thus, as Barton *et al.* (2007b) argue, social harms need to be thought of 'in terms of *social justice* rather than *criminal justice*, to enhance, rather than undermine, democratic and legal accountability, and to develop research agendas that provide the potential to challenge, rather than consolidate, the interests of the powerful' (p. 211, italics in original).

4. SUMMARY

This thesis has argued that there is a need to rethink our approach to small-scale fisheries compliance. In South Africa, where rules governing small-scale fisheries are embedded in historical legacies and power inequities, crime control methods will not achieve sustainable fisheries. A shift needs to take place that moves away from asking 'how do we increase compliance with rules' to 'how do we enhance the sustainability of the fishery system as a whole'. By adopting this broader approach, it is argued that fisheries compliance theory is taken one step further in its analysis. In addition to acknowledging the many factors that influence fisher behaviour, the conceptual framework introduced in this thesis also emphasises the need to

understand law – how it is formulated, and in whose interests. Thus, a key finding of this research is that power inequities lead to unjust laws, which carry little legitimacy on the ground, and which result in little obligation to comply. As a result, in addition to the principles of legitimacy and deterrence, which are incorporated into existing theories of compliance, this study emphasises that the principle of social justice is fundamental to a more integrated approach to understanding and addressing small-scale fisheries compliance.

REFERENCES

ACFR (Advisory Committee on Fisheries Research). 2003. A discussion paper for the ACFR Working Party on small-scale fisheries: draft. Prepared for the ACFR working party meeting October 2003, Bangkok: Thailand; 2003. FAO: Rome.

Acheson, J.M. 2006. Institutional failure in resource management. *Annual Review of Anthropology* 35: 117-134.

Acheson, J.M. and R.J. Gardner. 2004. Strategies, conflict and the emergence of territoriality: the case of the Maine lobster industry. *American Anthropologist* 106(2): 296-307.

Adger, W.N., K.Brown, J. Fairbrass, A. Jordan, J. Paavola, S. Rosendo. 2003. Governance for sustainability: towards a 'thick' analysis of environmental decisionmaking. *Environment and Planning* 35: 1095-1110.

African National Congress (ANC). 1994 Reconstruction and Development Programme: A policy framework.

Ahmed, M., S.V. Siar, D.C. Wilson and J. Muir. 2006. Governance and institutional changes in fisheries – impact on poverty reduction and environmental integrity in developing countries. In, Siar, S.V., M. Ahmed, U. Kanagaratnam and J. Muir (eds), *Governance and Institutional Changes in Fisheries: Issues and Priorities for Research*, pp. 1-24. WorldFish Center Discussion Series No. 3.

Allison, E.H. and B. Horemans. 2006. Putting the principles of the Sustainable Livelihoods Approach into fisheries development policy and practice. *Marine Policy* 30: 757-766.

Anderson, L.G. and D.R. Lee. 1986. Optimal governing instruments, operation level, and enforcement in natural resource regulation: the case of the fishery. *American Journal of Agricultural Economics* 68(3): 678-690.

Anon. 2007. Affidavit in the High Court of South Africa between the South African Abalone Industry Association and the Minister of the Department of Environmental Affairs and Tourism.

Anon. 2004. The illegal abalone industry. Confidential Report for the Minister of Finance.

ARHA (Abalone Rightsholders Association). 2001. Towards a people centred approach – draft management proposal for the South African abalone industry. Submitted to DEAT: MCM.

ARTC (Access Rights Technical Committee). 1996. Review of access rights options for South Africa. Final report of the ARTC to the Fisheries Policy Development Working Committee.

ASWG (Abalone Scientific Working Group). 2007. Recommendations for the sustainable management of the Western Cape abalone resource 2007/2008. WG/AB/07/Aug/29. Submitted to MCM, August 2007.

Barton, A., K. Corteen, D. Scott and D. Whyte. 2007a. Introduction: developing a criminological imagination. In, Barton A., K.Corteen, D. Scott and D. Whyte (eds), *Expanding the Criminological Imagination: critical readings in criminology*, pp. 1-14. William Publishing: Devon.

Barton, A., K. Corteen, D. Scott and D. Whyte. 2007b. Conclusion: explanding the criminological imagination. In, Barton A., K.Corteen, D. Scott and D. Whyte (eds), *Expanding the Criminological Imagination: critical readings in criminology*, pp. 198-213. William Publishing: Devon.

Bavinck, M. 2005. Understanding fisheries conflicts in the South – a legal pluralist perspective. *Society and Natural Resources* 18: 805-820.

Bavinck, M. 1996. Fisher regulations along the Coromandel coast: a case of collective control of common pool resources. *Marine Policy* 20(6): 475-482.

Becker, G.S. 1968. Crime and punishment: an economic approach. *Journal of Political Economy*: 76(2): 169-212.

Beirne, P. and N. South (eds). 2007. *Issues in Green Criminology: confronting harms against environments, humanity and other animals*. Willan Publishing: Devon.

Béné, C. 2003. When fishery rhymes with poverty: a first step beyond the old paradigm on poverty in small-scale fisheries. *World Development* 31(6): 949-975.

Béné, C. and S. Heck. 2005. Fish and food security in Africa. *NAGA*, WorldFish Centre Quarterly 28(3/4): 8-12.

Berkes, F. 2006. From community-based resource management to complex systems: the scale issue and marine commons. *Ecology and Society* 11(1): 45-59.

Berkes, F. 1987. Common property resource management and Cree Indian fisheris in subarctic Canada, In B.J. McCay and J. Acheson, *The Question of the Commons: the Culture and Ecology of Communal Resources*, pp. 66-91. University of Arizona Press: Tucson.

Berkes, F., J. Colding and C. Folke. 2003. *Navigating Social-ecological Systems: Building Resilience for Complexity and Change*. Cambridge University Press: Cambridge.

Berkes, F., R. Mahon, P. McConney, R. Pollnac and R. Pomeroy. 2001. *Managing Small-scale Fisheries: Alternative directions and methods*. International Development Research Centre: Ottawa.

Bhatt, C. 2004. Doing a dissertation. In, C. Seale (ed), *Researching Society and Culture*, pp. 409-430. Sage: London.

Box, S. 2003. Crime, power and ideological mystification. In, J. Muncie, E. McLaughlin and M. Langan (eds), *Criminological Perspectives*, pp. 245-256. Sage: London.

Branch, G.M. (ed). 2002. Developing subsistence fisheries in South Africa: marrying human needs and biological sustainability. Special edition, *South African Journal of Marine Science* 24: 403-523.

Branch, G., M. Hauck and G. Smith. 2007. Report of the Rock Lobster Co-management Compliance Workshop, 22 January 2007. University of Cape Town.

Branch, G.M. and B.M. Clark. 2006. Fish stocks and their management: the changing face of fisheries in South Africa. *Marine Policy* 30: 3-17.

Branch, G. M., M. Hauck, N. Siquana-Ndulo and A. Dye. 2002a. Defining fishers in the South African context: subsistence, artisanal and small-scale commercial sectors. *South African Journal of Marine Science* 24: 475-487.

Branch, G.M., J. May, B. Roberts, E. Russell and B.M. Clark. 2002b. Case studies on the socio-economic characteristics and lifestyles of subsistence and informal fishers in South Africa. *South African Journal of Marine Science* 24: 439-462.

Britz, P., S. Raemaekers, B. Godfrey and T. Tommy. 2007. Management of the Eastern Cape abalone resource: governance and co-management arrangements. Final report submitted to DEAT: Marine and Coastal Management. Department of Ichthyology and Fisheries Science, Rhodes University, South Africa.

Britz, P.J., W.H.H. Sauer, D. Mather, L.K. Oellerman, P.D. Cowley, L. Ter Morshuizen and N. Bacela. 2001. Baseline study of the utilisation of living marine resources in the Eastern Cape Province. Department of Ichthyology and Fisheries Science, Rhodes University, South Africa.

Bürgener, M. 2006. Information Document: proposed listing of abalone (Haliotis midae) on Appendix III of CITES. Background information document for the proposed listing of abalone on CITES Appendix III, Department of Environmental Affairs and Tourism, South Africa.

Buzan, B., O. Waever and J. de Wilde. 1998. *Security: A Framework for Analysis*. Lynne Rienner Publishers: Boulder.

Bryman, A. 1988. *Quantity and Quality in Social Research*. Hymna: London.

Byrne, B. 2004. Qualitative interviewing. In, C. Seale (ed), *Researching Society and Culture*, pp. 179-192. Sage: London.

Calvo-Ugarteburu, G. and S. Raemaekers. 2007. Local management plan for intertidal mussel stocks of the brown mussel (*Perna perna*) in Coffee Bay and Hole in the Wall. Prepared for WWF-SA. Working Document.

Cardoso, P., P. Fielding and M. Sowman. 2005. Overview and analysis of social, economic and fisheries information to promote artisanal fisheries management in the BCLME region – South Africa. Final report and recommendations, Environmental Evaluation Unit, University of Cape Town, South Africa.

Castilla, J.C., S. Gelcich and O. Defeo. 2007. Successes, lessons and projections from experience in marine benthic invertebrate artisanal fisheries in Chile. In, T.R. McClanahan and J.C. Castilla (eds), *Fisheries Management: Progress Towards Sustainability*, pp. 25-42. Blackwell Publishing: Oxford, U.K.

Castilla, J.C. and O. Defeo. 2005. Paradigm shift needed for world fisheries. *Science* 309: 1324-5.

CEC (Commission of the European Communities). 2007. On a new strategy for the Community to prevent, deter and eliminate Illegal, Unreported and Unregulated fishing. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels 17 October 2007.

Cederrand, S. 2003. Abalone: an analysis of the current situation and recommendations for a new management regime. Working Paper No. 12, SADC Monitoring, Control and Surveillance of Fisheries Activities Programme. Lux-Development S.A., Windhoek, Namibia.

Chambliss, W.J. 1975. Toward a political economy of crime. *Theory and Society* 2: 149-1970.

Chandler, T. 2003. *Fishing Industry Handbook: South Africa, Namibia and Mozambique.* George Warman Publications: Cape Town.

Charles, A. 2001. *Sustainable Fishery Systems*. Fish and Aquatic Resource Series 5. Blackwell Science: Oxford.

Charles, A.T., R.L. Mazany and M.L. Cross. 1999. The economics of illegal fishing: a behavioural model. *Marine Resource Economics* 14: 95-110.

Chuenpagdee, R., P. Degnbol, M. Bavinck, S. Jentoft, D. Johnson and R. Pullin. 2005. Challenges and concerns in capture fisheries and aquaculture. In, Kooiman J., S. Jentoft, R. Pullin and M. Bavinck (eds), *Fish for Life: interactive governance for fisheries,* pp.25-37. Amsterdam University Press: Amsterdam.

Clark, B.M. 2006a. Climate change: a looming challenge for fisheries management in southern Africa. *Marine Policy* 30: 84-95.

Clark, B.M. 2006b. Review of the EKZNW Subsistence Fisheries Programme. Report prepared for the KZN Subsistence Fisheries Management Committee by Anchor Environmental Consultants, July 2006.

Clark, B.M., M. Hauck, J.M. Harris, K. Salo and E. Russell. 2002. Identification of subsistence fishers, fishing areas, resource use and activities along the South African coast. *South African Journal of Marine Science* 24: 425-437.

Cochrane, K.L. and D.J. Doulman. 2005. The rising tide of fisheries instruments and the struggle to keep them afloat. *Philosophical Transactions of the Royal Society B* 360: 77-94.

Cockroft, A. 2007. WCRL fishery, presented at the Rock Lobster Compliance Co-management Workshop, 22 January 2007. In, Branch, G., M. Hauck and G. Smith, Workshop Report, University of Cape Town.
Cockroft, A.C., D. van Zyl and L. Hutchings. 2008. Large-scale changes in the spatial distribution of South African West Coast rock lobsters: an overview. *African Journal of Marine Science* 30(1): 149-159.

Cockroft, A.C., W.H.H. Sauer, G.M. Branch, A.H. Dye and E. Russell. 2002. Assessment of resource availability and suitability for subsistence fishers in South Africa, with a review of resource management procedures. *South African Journal of Marine Science* 24: 489-501.

Cockroft, A.C. and A. Payne. 1999. A cautious fisheries management policy in South Africa: the fisheries for rock lobster. *Marine Policy* 23(6): 587-600.

Commission on Human Security. 2004. *Human Security Now.* United Nations: New York.

Croeser, D., L. van Sittert, and S. Ponte. 2006. The integration of South African fisheries into the global economy: past, present and future. *Marine Policy* 30: 18-29.

Cullinan, C., G. Daniels and M. Sowman. 2005. The legal and institutional framework for the artisanal fisheries sector in the BCLME region. BCLME Final Report LMR/AFSE/03/01/A. Environmental Evaluation Unit, University of Cape Town, South Africa.

Daniels, G., J. Eastwood, C. Cullinan, M. Hauck and M. Sowman. 2006. Legal assessment of the implications of a partial closure of the abalone fishery. Report prepared for DEAT: MCM. August 2006.

DEAT (Department of Environmental Affairs and Tourism). 2008a. West coast rock lobster court case. Media statement by the Minister of DEAT, 17 March 2008.

DEAT (Department of Environmental Affairs and Tourism). 2008b. West coast rock lobster catch per year. Unpublished data provided by D. van Zyl, Marine and Coastal Management.

DEAT (Department of Environmental Affairs and Tourism). 2008c. Historical recreational catch, effort and CPUE of west coast rock lobster. Unpublished data provided by A. Cockroft, Marine and Coastal Management.

DEAT (Department of Environmental Affairs and Tourism). 2008d. A draft policy document for discussion towards integrating marginalised small scale fishers into regular utilisation of living marine resources in South Africa. Draft document submitted to the small-scale fisheries policy technical committee.

DEAT (Department of Environmental Affairs and Tourism). 2007a. Suspension of wild abalone commercial fishing. 25 October 2007, Media Statement, DEAT.

DEAT (Department of Environmental Affairs and Tourism). 2007b. Letter to the Minister, Suspension of wild abalone commercial fishing. 22 August 2007, submitted by the Director-General, DEAT.

DEAT (Department of Environmental Affairs and Tourism). 2007c. Statement presented at the National Summit on Subsistence and Small-scale Fisheries, 1-2 November 2007, Port Elizabeth, South Africa.

DEAT (Department of Environmental Affairs and Tourism). 2007d. Recommendations for the sustainable management of the Western Cape abalone resource 2007/2008. Submitted by MCM to the Minister, September 2007.

DEAT (Department of Environmental Affairs and Tourism). 2007e. Minister announces interim relief measures for fishers. Media statement by the Minister of DEAT, 3 May 2007.

DEAT (Department of Environmental Affairs and Tourism). 2006. Decision of abalone TAC. Memorandum to Minister from the Chief Director: Monitoring, Control and Surveillance, MCM, DEAT.

DEAT (Department of Environmental Affairs and Tourism). 2005. Draft policy for the allocation and management of commercial fishing rights in the West Coast Rock Lobster limited commercial (nearshore) fishery: 2005. DEAT: Branch Marine and Coastal Management.

DEAT (Department of Environmental Affairs and Tourism). 2004a. Transformation and the South African Fishing Industry: the TAC-controlled fisheries. DEAT: Pretoria.

DEAT (Department of Environmental Affairs and Tourism). 2004b. Abalone Protection Plan: strategic plan to prevent closure of the abalone fishery in the Overberg: 2004-2014.

DEAT (Department of Environmental Affairs and Tourism). 2004c. Notice of intention to declare the Cape Peninsula Marine Protected Area under Section 43 of the Marine Living Resources Act, 18 of 1998. Department of Environmental Affairs and Tourism.

DEAT (Department of Environmental Affairs and Tourism). 2003. Policy for the allocation of commercial fishing rights in the abalone fishery. DEAT: Pretoria.

DEAT (Department of Environmental Affairs and Tourism). 2002. Where have all the fish gone? Measuring transformation in the South African Fishing Industry. DEAT: Pretoria.

DEAT (Department of Environmental Affairs and Tourism). 1997. White Paper on Marine Fisheries Policy for South Africa.

Defeo, O., T.R. McClanahan and J.C. Castilla. 2007. A brief history of fisheries management with emphasis on societal participatory roles. In, T.R. McClanahan and J. C. Castilla (eds), *Fisheries Management: progress towards sustainability*, pp. 3-21. Blackwell Publishing: Oxford, U.K.

Degnbol, P., H. Gislason, S. Hanna, S. Jentoft, J. Raakjær-Nielsen, S. Sverdrup-Jensen and D. C. Wilson. 2006. Painting the floor with a hammer: technical fixes in fisheries management. *Marine Policy* 30: 534-543.

De Young, C.D., A. Charles and A. Hjort. 2008. *Human dimensions of the ecosystem approach to fisheries: an overview of context, concepts, tools and methods*. FAO Fisheries Technical Paper 489. FAO: Rome, Italy.

Diemont Commission. 1986. Report of the commission of inquiry into the allocation of quotas for the exploitation of living marine resources. Government Printer: Pretoria.

Dietz, T., N. Dolšak, E. Ostrom and P.C. Stern. 2002. The Drama of the Commons. In, Ostrom, E., T. Dietz, N. Dolšak, P.C. Stern, S. Stonich and E.U. Weber (eds), *The Drama of the Commons*, pp. 3-36. National Academy Press: Washington DC.

Dietz, T., E. Ostrom and P.C Stern. 2003. The struggle to govern the commons. *Science* 302(5652): 1907-1918.

Dixon, B. 2006. Development, crime prevention and social policy in post-apartheid South Africa. *Critical Social Policy* 26(1): 169-191.

Eisenhardt, K.M. 1988. Building theories from case study research. *Academy of Management Review* 14(4): 532-550.

Elliott, L. 2001. Regional environmental security: pursuing a non-traditional approach. In, Tan T.H. and J.D.K. Boutin (eds). *Non-Traditional Security Issues in Southeast Asia,* pp. 438-467. Select Publishing: Singapore.

EJF (Environmental Justice Foundation). 2005. *Pirates and Profiteers: How Pirate Fishing Fleets are Robbing People and Oceans*. Environmental Justice Foundation: London, UK.

EEU (Environmental Evaluation Unit). 2005. Proceedings of the National Fisheries and Coastal Co-management Workshop, 29-30 March 2005, Cape Town. Environmental Evaluation Unit, University of Cape Town, South Africa.

FAO (Food and Agriculture Organisation). 2005a. Increasing the contribution of small-scale fisheries to poverty alleviation and food security. Technical Guidelines for Responsible Fisheries, Vol 10. FAO: Rome.

FAO(Food and Agriculture Organisation). 2005b. Review of the State of World Marine Fishery Resources. FAO Fisheries Technical Paper 457. FAO: Rome.

FAO (Food and Agriculture Organisation) Advisory Committee on Fisheries Research. 2003. A discussion paper for the ACFR Working Party on small-scale fisheries: draft. Prepared for the ACFR working party meeting October 2003, Bangkok, Thailand.

FAO (Food and Agriculture Organisation). 2001. International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing. FAO: Rome.

FAO(Food and Agriculture Organisation). 1995. The Code of Conduct for Responsible Fisheries. FAO: Rome.

Faasen, H and S. Watts. 2007. Local community reaction to the 'no-take' policy on fishing in the Tsitsikaama National Park, South Africa. *Ecological Economics* 64: 36-46.

Faull, A. 2007. Corruption and the South African Police Service. Institute for Security Studies Paper 150. Institute for Security Studies: Pretoria, South Africa.

Fisheries Action Coalition Team. 2001. Feast or Famine? Solutions to Cambodia's fisheries conflicts. Fisheries Action Coalition Team, Phnom Penh, Cambodia.

Flewelling, P., C. Cullinan, D. Balton, R.P. Sautter and J.E. Reynolds. 2003. Recent Trends in Monitoring, Control and Surveillance Systems for Capture Fisheries, FAO Fisheries Technical Paper 415, FAO, Rome.

Flood, R.L. 2001. The relationship of 'systems thinking' to action research. In, P. Reason and H. Bradbury (eds), *Handbook of Action Research: participative inquiry and practice*, pp. 133-144. Sage Publications: London.

Gallardo, F.G.L. 2008. Seascapes of Extinction, Seascapes of Confidence. Territorial Use Rights in Fisheries in Chile: El Quisco and Puerto Oscuro. Co- Action Publishing, Sweden (www.co-action.net).

Garcia, P. 2008. Letter to the Minister of DEAT regarding motivation for extension of interim relief permits. Submitted by the national co-ordinator of the South African United Fishing Front.

Garcia, S.M., E.H. Allison, N.J. Andrew, C. Béné, G. Bianchi, G.J. de Graaf, D. Kalikoski, R. Mahon, and J.M. Oresanz. 2008. *Towards integrated assessment and advice in small-scale fisheries: principles and processes*. FAO Fisheries Technical Paper No. 515. United Nations Food and Agricultural Organisation: Rome, Italy.

Gastrow, P. 1998. Organised crime in South Africa: an assessment of its nature and origins. Institute for Security Studies; Monograph No. 28.

Gelcich, S., G. Edwards-Jones, M.J. Kaiser and E. Watson. 2005. Using discourses for policy evaluation: the case of marine common property rights in Chile. *Society and Natural Resources* 18: 377-391.

Gezelius, S.S. 2004. Food, money, morals: compliance among natural resource harvesters. *Human Ecology* 32(5): 615-635.

Gezelius, S.S. 2003. *Regulation and Compliance in the Atlantic Fisheries: state/society relations in the management of natural resources*. Kluwer Academic Publishers: Dordrecht.

Gezelius, S.S. 2002. Do norms count? State regulation and compliance in a Norwegian fishing community. *Acta Sociologica* 45: 305-314.

Ghee, L.T. and M.J. Valencia. 1990. *Conflict over Natural Resources in South-east Asia and the Pacific*. United Nations University Press, Singapore.

Glaser, B.G. and A.L. Strauss. 1967. *The Discovery of Grounded Theory: strategies for qualitative research*. Aldine de Gruyter: New York

Glavovic, B.C. and S. Boonzaier. 2007. Confronting coastal poverty: building sustainable coastal livelihoods in South Africa. *Ocean and Coastal Management* 50: 1-23.

Glavovic, B., B. Manaka, M. Sowman, S. Kuiper, B. Cousins, M. Hara, E. Russell, L. Mqakama and M. McKenzie. 2002. Sustainable coastal livelihoods study: Volume 1 – Synthesis of key findings and recommendations. Report prepared for the Department of Environmental Affairs and Tourism.

Glazewski, J.I. 2000. *Environmental Law in South Africa*. Butterworths: Durban

Gray, T.S. 2005. Theorising about participatory fishery governance. In, T.S. Gray (ed), *Participation in Fisheries Governance*, pp. 1-26. Springer: Dordrecht.

Godfrey, B., S. Raemaekers and P. Britz. 2004. Eastern Cape abalone resource survey. Final report submitted to DEAT: Marine and Coastal Management. Department of Ichthyology and Fisheries Science, Rhodes University, South Africa.

Gupta, C. and M. Sharma. 2004. Blurred borders: coastal conflicts between India and Pakistan. *The Economic and Political Weekly*, 3 July 2004.

Hagan, F. 1982. *Research Methods in Criminal Justice and Criminology*. Macmillan Publishing Co. Inc.: New York.

Hall-Arber, M. 2005. Co-management at the eleventh hour? Participation in the governance of the New England groundfish fishery. In, T.S. Gray (ed), *Participation in Fisheries Governance*, pp. 141-162. Springer: Dordrecht.

Halsey, M. 1997. Environmental crime: towards an eco-human rights approach. *Current Issues in Criminal Justice* 8(3): 217-242.

Halsey, M. and R. White. 1998. Ecophilosophy and environmental harm. *Theoretical Criminology* 2(3): 345-371.

Hanna, S. 2003. The future of fisheries co-management. In, D.C. Wilson, J. Raakjær-Nielsen and P. Degnbol (eds), *The Fisheries Co-management Experience: accomplishments, challenges and prospects*, pp. 309-319. Kluwer: Dordrecht.

Hanna, S. 1995. User participation and fishery management performance within the Pacific Fishery Management Council. *Ocean and Coastal Management* 28(1-3): 23-44.

Haque, M.S. 2004. How critical is 'environmental security' as a non-traditional security issue in Northeast Asia? In, Thakur. R. and E. Newman (eds), *Broadening Asia's Security Discourse and Agenda: Political, Social and Environmental Perspectives*, pp. 174-195. United Nations University Press: Tokyo.

Hara, M., M. Hauck and D. Mather. 2005. Economic Aspects of Monitoring, Control and Surveillance in South Africa: National fisheries profile, MCS assets and activities. Component A Report for Lux Development SA, Windhoek, Namibia.

Hara, M. and J. Raakjaer Nielsen. 2003. Experiences with fisheries co-management in Africa. In, D.C. Wilson, J. Raakjaer Nielsen and P. Degnbol (eds), *The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects*, pp. 81-98. Kluwer Academic Publishers: Dordrecht.

Hardin G. 1968. The tragedy of the commons. *Science* 162: 1243-1248.

Harris, J.M., G.M. Branch, B.M. Clark and S.C. Sibiya. 2007. Redressing access inequities and implementing formal management systems for marine and estuarine subsistence fisheries in South Africa. In, T. McClanahan and J.C. Castilla (eds), *Fisheries Management: Progress Towards Sustainability*, pp. 112-128. Blackwell Publishing: New Delhi.

Harris, J.M., G.M Branch, C. Sibiya, and C. Bill. 2003. The Sokhulu subsistence mussel-harvesting project: co-management in action, in M. Hauck and M. Sowman (eds.), *Waves of Change: Coastal and Fisheries Co-management in South Africa*. University of Cape Town Press: Cape Town, South Africa.

Harris, J.M., M. Sowman, G.M. Branch, B.M. Clark, A.C. Cockroft, C. Coetzee, A.H. Dye, M. Hauck, A. Johnston, L. Kati-Kati, Z. Maseko, K. Salo, W.H.H. Sauer, N. Siqwana-Ndulo and J. Beaumont. 2002a. The process of developing a management system for subsistence fisheries in South Africa: recognising and formalising a marginalised fishing sector in South Africa. *South African Journal of Marine Science* 24: 405-424.

Harris, J.M., G.M. Branch, B.M. Clark, A.C. Cockroft, C. Coetzee, A.H. Dye, M. Hauck, A. Johnston, L. Kati-Kati, Z. Maseko, K. Salo, W.H.H. Sauer, N. Siqwana-Ndulo and M. Sowman. 2002b. Recommendations for the management of subsistence fisheries in South Africa. *South African Journal of Marine Science* 24: 503-523.

Hartnack, A. 2008. Basic social assessment of the proposed in-situ upgrade of the Hangberg informal settlement. Report prepared for Sillito Environmental Consulting.

Hatcher. A., S. Jaffry, O. Thebaud and E. Bennett. 2000. Normative and social influences affecting compliance with fishery regulations. *Land Economics* 76(3): 448-462.

Hauck, M. 2009. Policy Brief: Towards small-scale fisheries compliance in South Africa. Environmental Evaluation Unit, University of Cape Town. www.eeu.uct.ac.za

Hauck, M. 2007. Non-compliance in small-scale fisheries: a threat to security? In: P. Beirne and N. South (eds.), *Issues in Green Criminology: Confronting Harms Against Environments, Humanity and Other Animals,* pp. 270-289. Willan Publishing: Devon.

Hauck, M. 2000. An overview of state and non-state responses to abalone poaching in South Africa. Paper presented at the 4th International Abalone Symposium, 6-11 February 2000, Cape Town, South Africa.

Hauck, M. 1999a. Regulating marine resources in South Africa: the case of the abalone fishery. In, J. Glazewski and G. Bradfield (eds), *Environmental Justice and the Legal Process*, pp. 211-228. Juta: Cape Town.

Hauck, M. 1999b. Seawatch: Civil Society's Role in Combating Environmental Crime. *South African Journal of Environmental Law and Policy* 6(1): 101-119.

Hauck, M. 1998. Abalone and crayfish poaching: an analysis of the problem and recommendations for action. Institute of Criminology, University of Cape Town.

Hauck, M. 1997. Crime, conservation and community development: ecological criminology and the case study of abalone poaching. Masters thesis, Institute of Criminology, University of Cape Town, South Africa.

Hauck, M. and R. Hasler. 2006. Ezemvelo KwaZulu-Natal small-scale fisheries compliance workshop report. Report for the NORSA small-scale fisheries compliance project, Environmental Evaluation Unit, University of Cape Town, South Africa.

Hauck, M. and M. Kroese. 2006. Fisheries compliance in South Africa: a decade of challenges and reform 1994-2004. *Marine Policy* 30(1):74-83.

Hauck, M and M. Sowman. 2005. Coastal and Fisheries Co-management in South Africa: is there an enabling legal environment. *South African Journal of Environmental Law and Policy* 12(1): 1-21.

Hauck, M., M. Hara and D. Mather. 2005. Economic aspects of MCS South Africa: compliance and legitimacy investigation (Report B). Lux-Development South Africa, SADC Monitoring, Control and Surveillance Fisheries Activities Programme.

Hauck, M. and R. Hector. 2003. Towards abalone and rock lobster co-management in the Hangklip-Kleinmond Area. In: M. Hauck and M. Sowman, *Waves of Change: Coastal and Fisheries Co-management in South Africa*, pp. 247-268. University of Cape Town Press: Cape Town.

Hauck, M. and M. Sowman (eds). 2003. *Waves of Change: Coastal and Fisheries Co-management in South Africa*. University of Cape Town Press: Cape Town.

Hauck, M. and M. Nursey-Bray. 2002. Illegal fishing & 'subsistence' fisheries management: a case study in South Africa. Unpublished paper, Environmental Evaluation Unit, University of Cape Town, South Africa.

Hauck, M. and M. Nursey-Bray. 2002. Illegal fishing & 'subsistence' fisheries management: a case study in South Africa. Unpublished paper, Environmental Evaluation Unit, University of Cape Town, South Africa.

Hauck, M., M.Sowman, B. Clark.B, E. Russell, J. Harris, M. A.Venter, J. Beaumont, and Z. Maseko. 2002. Perceptions of subsistence and informal fishers in South Africa regarding the management of living marine resources. *South African Journal of Marine Science* 24: 463-474.

Hauck, M. and M. Sowman. 2001. Coastal and Fisheries Co-Management in South Africa: An Overview and Analysis. *Marine Policy* 25: 173-185.

Hauck, M and R. Hector. 2000. An Analysis of Operation Neptune: Government's Response to Marine Poaching. (Occasional Paper Series). Cape Town: Institute of Criminology, University of Cape Town.

Hauck, M and N. A. Sweijd. 1999. A Case Study of Abalone Poaching in South Africa and its Impact on Fisheries Management. *ICES Journal of Marine Science* 56: 1024-1032.

Hasler, R. 2007. Report summary on in-depth research methods, approach and findings in Eastern Cape and KwaZulu Natal case studies. Internal report for the small-scale fisheries compliance project, Environmental Evaluation Unit, University of Cape Town, South Africa.

Halsey, M. 2004. Against 'green' criminology. *British Journal of Criminology* 44: 833-853.

Halsey, M. and R. White. 1998. Crime, ecophilosophy and environmental harm. *Theoretical Criminology* 2(3): 345-371.

Hemming, B. and B.E. Pierce. 1997. Fisheries enforcement: our last fisheries management frontier. In, D.A. Hancock, D.C. Smith, A. Grant and J.P. Beumer (eds.), *Proceedings of the Second World Fisheries Congress*, pp 675-679. CSIRO Publishing, Australia.

Hermanus Crime Intelligence Unit. 1998. The Illegal Abalone and Rock Lobster Trade and the South African Chinese Triad Gangs in the Western Cape. Confidential Report of the Crime Intelligence Production Unit, South African Police Service, Hermanus.

Hernes, H.K., S. Jentoft and K.H. Mikalsen. 2005. Fisheries governance, social justice and participatory decision-making. In, T.S. Gray (ed), *Participation in Fisheries Governance*, pp. 103-118. Springer: Dordrecht.

Hersoug, B. 2002. *Fishing in a sea of sharks: reconstruction and development in the South African fishing industry*. Eburon: Delft.

Hersoug, B. and P. Holm. 2000. Change without redistribution: an institutional perspective on South Africa's new fisheries policy. *Marine Policy* 24: 221-231.

Hoel, A.H. and I. Kvalvik. 2006. The allocation of scarce natural resources: the case of fisheries. *Marine Policy* 30: 347-356.

Hønneland, G. 2000. Compliance in the Barents Sea Fisheries: how fishermen account for conformity with rules. *Marine Policy* 24: 11-19.

Hutton, T. 2003. Industry-government co-management arrangements in the South African offshore demersal hake fishery. In, M. Hauck and M. Sowman, (eds,), *Waves of Change: Coastal and Fisheries Co-Management in South Africa*, pp. 199-226 University of Cape Town Press: Cape Town.

Hutton, T. and T. Pitcher. 1998. Current directions in fisheries management policy: a perspective on co-management and its application to South African fisheries. *South African Journal of Marine Science* 19: 471-486.

Isaacs, M. 2006a. Small-scale fisheries reform: expectations, hopes and dreams of "a better life for all". *Marine Policy* 30(1): 51-59.

Isaacs, M. 2006b. A social coastal fisheries policy for South Africa? Subsistence fisheries co-management for sustainable livelihoods and poverty alleviation. Programme for Land and Agrarian Studies (PLAAS) Policy Brief No. 24.

Isaacs, M. 2003. Understanding the social processes and politics of implementing a new fisheries policy, the Marine Living Resources Act 18 of 1998, in South Africa. PhD thesis, Department of Economic and Management Sciences, University of the Western Cape, South Africa.

Isaacs, M., M. Hara and J. Raakjær-Nielsen. 2007. Has reforming South African fisheries contributed to wealth distribution and poverty alleviation? *Ocean and Coastal Management* 50: 301-313.

Isaacs, M., M. Hara and J. Raakjær-Nielsen. 2005. South African fisheries reform – past, present and future? Programme for Land and Agrarian Studies (PLAAS) Policy Brief No. 16.

Jentoft, S. 2007. The limits of governability: institutional implications for fisheries and coastal governance. *Marine Policy* 31: 360-370.

Jentoft, S. 2004a. The community in fisheries management: experiences, opportunities and risks. In, B. Hersoug, S. Jentoft and P. Degnbol, *Fisheries Development: The Institutional Challenge*, pp. 93-130. Eburon: Delft.

Jentoft, S. 2004b. Institutions in fisheries: what they are, what they do, and how they change. *Marine Policy* 28: 137-149.

Jentoft, S. 2000. Legitimacy and disappointment in fisheries management. *Marine Policy* 24:141-8.

Jentoft, S. 1989. Fisheries co-management: delegating government responsibility to fishermen's organisations. *Marine Policy* 13(2): 137-154.

Jentoft, S. and B.J. McCay. 2003. The place of civil society in fisheries management: a research agenda for fisheries co-management. In, D.C. Wilson, J. Raakjaer-Nielsen and P. Degnbol (eds), *The Fisheries Co-management Experience: accomplishments, challenges and prospects*, pp. 293-307. Kluwer: Dordrecht.

Jentoft, S., BJ. McCay, and D.C. Wilson. 1998. Social theory and fisheries co-management. *Marine Policy* 22(4-5): 423-436.

Jentoft, S. and B. McCay. 1995. User participation in fisheries management: lessons drawn from international experiences. *Marine Policy* 19(3): 227-246.

Johnson, D. 2006(ed). Exploring the role of social science in fisheries management: Special issue. *MAST* 4(2).

Johnston, S.J. and D.S. Butterworth. 2005. Evolution of operational management procedures for the South African West Coast rock lobster (*Jasus lalandii*) fishery. *New Zealand Journal of Marine and Freshwater Research* 39: 687-702.

Johnston, A. 2007. Comments submitted by the Artisanal Fishers Association to DEAT for the Subsistence and Small-scale Fisheries Summit 1-2 November 2007.

Jones, P.J.S. 2006. Collective action problems posed by no-take zones. *Marine Policy* 30: 143-156.

Joubert, P. 2007. Cape Gangs: targeting the untouchables, *Mail and Guardian* 28 August 2007.

Kapembe F., V. Lakay and M. Monaledi (2007): An Analysis of the Implementation of Basic Services in Hangberg Informal Settlement, Hout Bay. University of Cape Town Honours Thesis: Department of Environmental and Geographical Science.

Kapfudzaruwa, F., V. Zungu and M. Hauck. 2008. Devolution of fisheries authority: compliance challenges in KZN, South Africa. Internal report for small-scale fisheries compliance project, Environmental Evaluation Unit, University of Cape Town, South Africa.

Kariem, S. 2005. Identification of alternative economic/livelihood opportunities for the Swartkops Fishery. Final Report, Sustainable Coastal Development.

Kelly, M. and S. Ali. 2004. Ethics and social research. In, C. Seale (ed), *Researching Society and Culture,* pp. 115-128. Sage: London.

Keulder, F. and D. van Zyl. 2008. Interim relief report West Coast Rock Lobster 2007/2008. WCRL working group document: MCM/2008/JUN/SWG-WCRL/03

Kleinschmidt, H., W.H.H. Sauer and P. Britz. 2003. Commercial fishing rights allocation in post-apartheid South Africa: reconciling equity and stability. *African Journal of Marine Science* 25: 25-35.

Kooiman, J., M. Bavinck, S. Jentoft and R. Pullin (eds). 2005. *Fish for Life: Interactive Governance for Fisheries*. Amsterdam University Press, Amsterdam.

Kooiman, J. and S. Jentoft. 2005. Hard choices and values. In, J. Kooiman, M. Bavinck, S. Jentoft and R. Pullin (eds), *Fish for Life: Interactive Governance for Fisheries*, pp. 285-299. Amsterdam University Press: Amsterdam.

Kuperan, K. and J.G. Sutinen. 1998. Blue water crime: deterrence, legitimacy and compliance in fisheries. *Law & Society Review* 32/2:309-37.

Kuperan, K. and J.G. Sutinen. 1994. Compliance with zoning regulations in Malaysian Fisheries. Paper presented at the IIFET VII International Conference of International Institute of Fisheries Economics and Trade, Republic of China, 18-21 July 1994.

Kuperan, K., NMR Abdullah, I. Susilowati, IM Siason and C. Ticao. 1997. Enforcement and compliance with fisheries regulations in Malaysia, Indonesia and the Philippines. Research report, Department of Natural Resource Economics, University Pertanian Malaysia.

Kyle, R. 2003. Kosi bay gillnetting: a community-based joint management fishery inside a nature reserve. In, M. Hauck and M. Sowman (ed), *Waves of Change: Coastal and Fisheries Co-management in South Africa*, pp. 123-147. University of Cape Town Press: Cape Town.

Le May, J. 2002. Caught between rock lobsters and a hard place. *Cape Argus* 18 January 2002.

Leedy, P. D. and J.E. Ormrod. 2005. *Practical Research: Planning and design* (8th ed.). Prentice-Hall: New Jersey.

Lynch, M.J. and P.B. Stretsky. 2003. The meaning of green: contrasting criminological perspectives. *Theoretical Criminology* 7(2): 217-238.

Majchrzak, A. 1984. *Methods for Policy Research*. Sage: London, U.K.

Manning, P. 2001. Small-scale fisheries management in sub-Saharan Africa. A background document for the FAO Expert Consultation on Small-scale Fisheries Management in Sub-Saharan Africa, December 2001, Accra, Ghana.

Maharaj, G. 2006. Trying times for the abalone fishery: the challenges of balancing abalone, divers, poachers and the fund. Presentation to SANCOR, October 2006.

Maharaj, G., R.J.Q. Tarr and A.J. Mackenzie. 2005. From abalone quotas to TURFS: the future? Paper presented at the Southern African Marine Science Symposium, 4-7 July 2005, Durban, South Africa.

Mann, B. 2003. The St. Lucia subsistence gillnet fishery. In, M. Hauck and M. Sowman (ed), *Waves of Change: Coastal and Fisheries Co-management in South Africa*, pp. 99-122. University of Cape Town Press: Cape Town.

Martin, R.E. 1995. South African fisheries management and abalone exploitation. Post-graduate thesis in Law: Faculty of Law, University of Cape Town, South Africa.

Martin, R. and J. Raakjær-Nielsen. 1997. Creation of a new fisheries policy in South Africa: the development process and achievements. In, A.K. Normann, J. Raakjaer-Nielsen and S. Sverdrup-Jensen (eds), *Fisheries Co-management in Africa*, pp. 153-171. IFM: Hirtshals.

Masifundise. 2008a. Small-Scale Fisheries Policy Proposal developed at the Masifundise CWIC National Workshop, 12 March 2008.

Masifundise. 2008b. Promoting participatory environmental governance of traditional small scale fisheries in South Africa: National Workshop Report. National Workshop for Small-scale Fishers, 10-14 March 2008, Simonstown, South Africa.

Masifundise. 2007. Comments on the Draft for the Allocation and Management of Medium-term Small Scale Commercial Fishing Rights and for the Allocation and Management of Medium Term Subsistence Fishing Rights. Submitted to DEAT.

Masifundise .2006. Court Case Affidavit. [Online]. Available at: http://www.masifundise.org.za/documents/courtdocs.doc [accessed 5 March 2008].

Masifundise. 2005. Comments on Draft General Policy on the Allocation and Management of Long Term Commercial Fishing Rights. Submitted to DEAT.

Masifundise. 2003. Report on the Fisher Human Rights Hearing, 13-14 August 2003. Masifundise Report.

Mathew, S. 1990. Fishing legislation and gear conflicts in Asian countries. SAMUDRA Monograph No. 1. International Collective in Support of Fishworkers (ICSF), Chennai, India.

Maughan, K. 2008. Selebi seeks 243 answers. *The Star*, 15 October 2008.

May, J. and C. Meth. 2007. Dualism or underdevelopment in South Africa: what does a quantitative assessment of poverty, inequality and employment reveal? *Development Southern Africa* 24(2): 271-287.

McCay, B. 2002. Emergence of institutions for the commons: contexts, situations and events. In, E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stonich and E.U. Weber (eds), *The Drama of the Commons*, pp. 361-402. National Academy Press: Washington, D.C.

McCay, B.J. and J.M. Acheson (eds). 1987. *The Question of the Commons: The Culture and Ecology of Communal Resources*. University of Arizona Press: Tucson.

McClanahan, T.R., J.C. Castilla, A.T. White and O. Defeo.2008. *In press*. Healing small-scale fisheries by facilitating complex socio-ecological systems. *Rev. Fish. Biol. Fisheries* 18.

McClanahan, T.R. and J.C. Castilla. 2007. Healing fisheries. In, T.R. McClanahan and J. C. Castilla, eds, *Fisheries Management: Progress Towards Sustainability*, pp. 305-326. Blackwell Publishing: Oxford, U.K.

McGoodwin, J.R. 1987. Mexico's conflictual inshore Pacific fisheries: problem analysis and policy recommendations. *Human Organization* 46(3): 221-232.

McKinlay, J.P. and P.J.Millington. 2000. Fisher obligations in co-managed fisheries: the case for enforcement. In,Shotton. R. (ed), *Use of Property Rights in Fisheries Management*. FAO: Rome.

Melville-Smith, R. and L. van Sittert. 2005. Historical commercial West Coast rock lobster *Jasus lalandii* landings in South African waters. *African Journal of Marine Science* 27(1): 33-44.

Mitchell, J.C. 1984. Producing data. In, R.F. Ellen (ed), *Ethnographic Research*. Academic Press: London.

Morenzo, C.A., N. Barahona, C. Molinet, J.M. Orensanz, A.M. Parma and A. Zuleta. 2007. From crisis to institutional sustainability in the Chilean sea urchin fishery. In, T.R. McClanahan and J.C. Castilla (eds), *Fisheries Management: Progress Towards Sustainability*, pp. 43-67. Blackwell Publishing: Oxford, U.K.

MRAG (Marine Resources Assessment Group). 2005. Review of Impacts of Illegal, Unreported and Unregulated fishing on Developing Countries. Final Report submitted to the UK's Department for International Development (DFID).

MRAG and CapFish. 2008. Study and analysis of status of IUU fishing in the SADC region and an estimate of the economic, social and biological impacts. Report produced for SADC Member States.

Myers, N. 2004. Environmental security: what's new and different? Background paper for The Hague Conference on Environment, Security and Sustainable Development, 9-12 May 2004. The Hague: The Netherlands.

Najam, A. 2004. Sustainable development and human security: lessons from South Asia. In, Thakur, R., E. Newman (eds). *Broadening Asia's Security Discourse and Agenda: Political, Social and Environmental Perspectives*, pp. 147-173. United Nations University Press: Tokyo.

Napier, V.R., G.M. Branch and J.M. Harris. 2005. Evaluating conditions for successful co-management of subsistence fisheries in KwaZulu-Natal, South Africa. *Environmental Conservation* 32(2): 165-177.

Nel, D. 2005. Report on the Risk Assessment for Sustainable Fisheries (RASF) Workshop for the South African West Coast Lobster Fishery, 30 May – 3 June 2005, Cape Town, South Africa.

Neuman, W.L. 2006. *Social Research Methods: Qualitative and Quantitative Approaches, 6th Edition.* Pearson: Boston.

Omari, N. 2006. Legal pluralism in environmental management: informal rules and non-compliance in the Karbonkelberg Marine Protected Area. MPhil thesis in Environmental Management, Department of Environmental and Geographical Sciences, University of Cape Town.

Ostrom, E. 2000. Collective action and the evolution of social norms. *The Journal of Economic Perspectives* 14(3): 137-158.

Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press: Cambridge.

Parkington, J., C. Poggenpoel, W. Buchanan, T. Robey, A. Manhire, and J. Sealy. 1998. Holocene coastal settlement patterns in the Western Cape. In: Bailey, G and P.E. Parkington (eds), *The Archaeology of Prehistoric Coastlines.* Cambridge University Press, Cambridge.

Pauly, D. 2006. Major trends in small-scale marine fisheries, with emphasis on developing countries, and some implications for the social sciences. *MAST* 4(2): 74-22.

Pauly, D., J. Alder, E. Bennett, V. Christensen, P. Tyedmers and R. Watson. 2003. The future for fisheries. *Science* 302: 1359-1361.

Payne, A.I.L and K.L. Cochrane. 1995. How management and science are trying to develop fisheries policy in South Africa. *ICES Document* 1995/S:8.

Pinkerton, E.W. 1989. Introduction: attaining better fisheries management through co-management – prospects, problems, and propositions. In, E. Pinkerton (ed), *Co-operative Management of Local Fisheries: New Directions for Improving Management and Community Development*, pp. 3–33. University of British Columbia Press: Vancouver.

PICOC (Provincial Intelligence Centre for Organised Crime). 1998. Chinese Triad Gangs in the Western Cape. Confidential Report of the Intelligence Production Unit, South African Police Service, Western Cape.

Plagányi, É.E. 2007a. A summary of the assessment and management approach applied to South African abalone (Haliotis midae) in Zones A-D. Abalone Scientific Working Group Paper WG/AB/07/Jun/01. MARAM, Department of Mathematics and Applied Mathematics, University of Cape Town, South Africa.

Plagányi, É.E. 2007b. Projection results for Zones A, B, C and D in 2007. Abalone Scientific Working Group Paper WG/AB/07/Aug/27. MARAM, Department of Mathematics and Applied Mathematics, University of Cape Town, South Africa.

Plagányi, É.E. and D.S. Butterworth. *In prep*. A spatial and age-structured assessment model to estimate poaching and ecosystem change impacting the management of South African abalone *Haliotis midae*.

Platteau, J.P. 1989. The dynamics of fisheries development in developing countries: a general overview. *Dev. Change* 20(4): 565-597.

Pomeroy, R.S., B.M. Katon and I. Harkes. 2001. Conditions affecting the success of fisheries co-management: lessons from Asia. *Marine Policy* 25(3): 197-208.

Provincial Development Council. 1995. The Western Cape: a socio-economic profile. Metropolitan Life Printing: Cape Town.

Raakjær-Nielsen, J. 2003. An analytical framework for studying: compliance and legitimacy in fisheries management. *Marine Policy* 27:425-32.

Raakjær-Nielsen, J. and M. Hara. 2006. Transformation of South African industrial fisheries. *Marine Policy* 30(1): 43-50.

Raakjær-Nielsen, J., P. Degnbol, K.K. Viswanathan, M. Ahmed, M. Hara and N.M.R. Abdullah. 2004. Fisheries co-management – an institutional innovation? Lessons from South East Asia and Southern Africa. *Marine Policy* 28: 151-160.

Raakjær-Nielsen, J. and C. Mathiesen. 2003. Important factors influencing rule compliance in fisheries lessons in Denmark. *Marine Policy* 27:409-16.

Raemaekers, S. *In prep*. Rethinking South Africa's inshore fisheries management paradigm and governance approach: evidence from the Eastern Cape. PhD thesis, Rhodes University

Raemaekers, S., and Britz, P.J. *In prep*. Profile of the illegal abalone fishery (*Haliotis midae*) in the Eastern Cape Province, South Africa: organised pillage and management failure.

Raemaekers, S., Godfrey, B. P., and Britz, P. J. 2007. Management of the Eastern Cape abalone resource: governance and co-management arrangements. DEAT Outsourced Provincial Research Projects. Final Report.

Raemaekers, S., M. Hauck, P.J. Britz, M. Bürgener, A. Mackenzie, G. Maharaj and E. Pláganyi. *In prep*. The 'legal' and 'illegal' abalone fisheries in South Africa: collapse in fisheries management.

Reason, P. and H. Bradbury (eds). 2001. *Handbook of Action Research: Participative Inquiry and Practice*. Sage: London.

Redpath, J. 2001. The bigger picture: the gang landscape in the Western Cape. *Indicator SA* 18(1): 34-40.

Rigg, K., R. Parmentier and D. Currie. 2003. Halting IUU fishing: enforcing international fishing agreements. Report prepared for Oceana by the Varda Group (www.vardagroup.org).

Robson, C. 2002. *Real World Research*. Blackwell Publishing: Malden.

Roncin, N., D. Bailly and P. Raux. 2004. Determinants of fishermen's compliance – lessons from a coastal fishery in Biscay Bay. In, Y. Matsuda and T. Yamamoto (eds), What are responsible fisheries? Proceedings of the 12th Biennial Conference of the International Institute of Fisheries Economics & Trade (IIFET), 20-30 July, 2004, Tokyo, Japan.

SAPA (South African Press Association). 2007. Fishing underway in protected areas. 19 April 2007.

Sauer, W.H.H., T. Hecht, P.J. Britz and D. Mather. 2003. An economic and sectoral study of the South African fishing industry. Volume 2: Fishery profiles. Report prepared for Marine and Coastal Management by Rhodes University, South Africa

Schlager, E. 2002. Rationality, cooperation and common pool resources. *Science* 45(5): 801-819.

Schutte, D. 1993. '*N Ontleding van die Ontwikkelingspotensiaal van Geselekteerde Vissersgemeenskappe aan die Wes-en Suidkus*. HSRC: Cape Town.

Scraton, P. 2002. Defining 'power' and challenging 'knowledge': critical analysis as resistance in the UK. In, K. Carrington and R. Hogg (eds), *Critical Criminology: Issues, Debates, Challenges*, pp. 15-40. Willan: Devon.

Scraton, P. and K. Chadwick. 1991. The theoretical and political priorities of critical criminology. In: K. Stenson and D. Cowell (Eds.), *The Politics of Crim,* pp. 166-185. Sage: London. Republished in J. Muncie *et al* (eds.), 1996, *Criminological Perspectives*, pp. 284-298. Sage: London.

Seale, C. 2004a. Validity, reliability and the quality of research. In, C. Seale (ed), *Researching Society and Culture*, pp. 71-83. Sage: London.

Seale, C. 2004b. Coding and analysing data. In, C. Seale (ed), *Researching Society and Culture*, pp. 305-321. Sage: London.

Seale, C. 2004c. Generating grounded theory. In, C. Seale (ed), *Researching Society and Culture*, pp. 239-247. Sage: London.

SFTG (Subsistence Fisheries Task Group). 2000. Recommendations for subsistence fisheries management in South Africa. SFTG Final Report submitted to Marine and Coastal Management, Department of Environmental Affairs and Tourism, South Africa.

Shannon, L.J., P.M. Cury, D. Nel, C.D. van der Lingen, R.W. Leslie, S.L. Brouwer, A.C. Cockroft and L. Hutchings. 2006. How can science contribute to an ecosystem approach to pelagic, demersal and rock lobster fisheries in South Africa? *African Journal of Marine Science* 28(1): 115-157.

SIF (Stop Illegal Fishing). 2008. Stop Illegal Fishing in Southern Africa. Stop Illegal Fishing: Botswana.

Silverman, D. 2004. Research and social policy. In, C. Seale (ed), *Researching Society and Culture*, pp. 59-69. Sage: London.

Silverman, D. 2001. *Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction*. Sage: London.

Silvestre, G.T., L.R. Garces, I. Stobutzki, M. Ahmed, R.A. Valmonte-Santos, C.Z. Luna and W. Zhou. 2003. South and South-east Asian coastal fisheries: their status and directions for improved management: conference synopsis and recommendations, pp. 1-40. In, G. Silvestre, L.R. Garces, I. Stobutzki, M. Ahmed, R.A. Valmonte-Santos, C.Z. Luna, L. Lachica-Alino, P. Munro, V. Christensen and D. Pauly (eds.). *Assessment, Management and Future Directions for Coastal Fisheries in Asian Countries*. WorldFish Center Conference Proceedings 67.

Snijman, P. 2005. Assessing the role and success of specialised courts regarding compliance in resource management, using the abalone fishery and the environmental court at Hermanus as a case study. Paper presented at the Regional Monitoring, Control and Surveillance Symposium, 1-3 February, Cape Town, South Africa.

South, N. 2007. The 'corporate colonisation of nature': bio-prospecting, biopiracy and the development of green criminology. In, Beirne, P. and N. South (eds*), Issues in Green Criminology: confronting harms against environments, humanity and other animals*, pp. 230-247. William Publishing: Devon.

South, N. 1998. A green field for criminology? *Theoretical Criminology* 2(2): 211-233.

Sowman, M. 2006. Subsistence and small scale fisheries in South Africa: a ten year review. *Marine Policy* 26: 60-73.

Sowman, M., P. Cardoso. *In prep.* Fisheries and food security in the Benguela Current Large Marine Ecosystem Region. Environmental Evaluation Unit, University of Cape Town.

Sowman, M., P. Fielding, M. Hauck, S. Williams, K. Neethling, and T. Phillips. 2008. Effective sustainable livelihood options for fishers in three coastal communities. Report submitted by the Environmental Evaluation Unit, University of Cape Town, to the National Environmental Advisory Forum of the Department of Environmental Affairs and Tourism, May 2008.

Sowman, M., M. Hauck and G.M. Branch. 2003. Lessons learned from nine coastal and fisheries co-management case studies. In, M. Hauck and M. Sowman (eds.), *Waves of Change: Coastal and Fisheries Co-management in South Africa*, pp. 299-340. UCT Press: Cape Town.

Spicer, N. 2004. Combining qualitative and quantitative methods. In, In, C. Seale (ed), *Researching Society and Culture*, pp. 293-304. Sage: London.

Statistics South Africa. 2002. Income and expenditure of households 2000: South Africa. Statistical Release P0111. Pretoria.

Steinberg, J. 2005. The illicit abalone trade in South Africa. Institute for Security Studies Paper 105. Cape Town, South Africa.

Steyn, E., P.J. Fielding and M.H. Schleyer. *In press*. An assessment of the artisanal fishery for east coast spiny lobster *Panulirus Homarus* (Linnaeus) along the Wild Coast, South Africa. *African Journal of Marine Science*.

Sunde, J. 2003. Access and Rights to the Marine Commons in South Africa: Perspectives, Lessons and Possibilities for Future Action. Masifundise Document.
Sunde, J. and M. Isaacs. 2008. Marine conservation and coastal communities – who carries the costs? A study of Marine Protected Areas and their impact on traditional

small-scale fisher communities in South Africa. A joint publication by Masifundise and PLAAS, University of the Western Cape.

Sunderlin, W.D. and M.G. Gorospe. 1997. Fishers' organizations and modes of co-management: the case of San Miguel Bay, Philippines. *Human Organization* 56(3): 333-343.

Sutinen J. and K. Kuperan. 1999. A socio-economic theory of regulatory compliance. *International Journal of Social Economics* 26(1/2/3):174-193.

Sutinen, J.G., A. Rieser and J.R. Gauvin. 1990. Measuring and explaining non-compliance in federally managed fisheries. *Ocean Development and International Law* 21:335-72.

Sutinen, J. and P. Andersen. 1985. The economics of fisheries law enforcement. *Land Economics* 61: 387-397.

Symes, D. 2006. Fisheries governance: a coming of age for fisheries social science? *Fisheries Research* 81: 113-117.

Tarr, R.J.Q. 2000. The South African abalone (*Haliotis midae*) fishery: a decade of challenges and change. *Can. Spec. Publ. Fish. Aquat. Sci.* 130: 32-40.

Tarr, R.J.Q. 1992. The abalone fishery of South Africa. In, S.A. Sheperd, M.J. Tegner and S.A. Guzman del Proo (eds), *Abalone of the World: biology, fisheries and culture*, pp. 438-447. Fishing News Books: Oxford, England.

Tarr, R.J.Q., P.V.G. Williams and A.J. Mackenzie. 1996. Abalone, sea urchins and rock lobster: a possible ecological shift may affect traditional fisheries. *South African Journal of Marine Science* 17: 311-315.

Taylor, I., P. Walton and J. Young. 1973. *The New Criminology*. London: Routledge.

Terre, B. M. and K. Durrheim (eds). 1999. *Research in Practice: Applied Methods for the Social Sciences*. Juta Academic: Cape Town.

Thakur. R. and E. Newman. 2004. Introduction: non-traditional security in Asia. In, Thakur. R. and E. Newman (eds), *Broadening Asia's Security Discourse and Agenda: Political, Social and Environmental Perspectives*, pp. 1-16. United Nations University Press: Tokyo.

Treurnicht Commission. 1980. Report of the Commission of Inquiry into certain aspects of the conservation and utilization of the living marine resources of the Republic of South Africa.

To, A.W.L., B.C.H. Hau and S.K.H. Lee. 2006. A study on the trade in dried abalones in Hong Kong. *TRAFFIC Bulletin* 21(1): 25-34.

Tyler, T.R. 2006. *Why People Obey the Law*. Princeton University Press: Princeton.

Tonkiss, F. 2004. Using focus groups. In, C. Seale (ed), *Researching Society and Culture*, pp. 193-206. Sage: London.

United Nations Development Programme (UNDP). 1994. Human Development Report 1994. Oxford University Press: New York.

UN (United Nations). 2006. UN General Assembly Resolution on Sustainable Fisheries A/RES/61/105. UN: New York.

UNDP (United Nations Development Programme). 2003. South Africa Human Development Report 2003: The challenge of sustainable development in South Africa – unlocking people's creativity. Oxford University Press Southern Africa: Cape Town.

UNDP (United Nations Development Programme). 1994. *Human Development Report 1994*. Oxford University Press, New York.

Van Ginkel, R. 2005. Between top-down and bottom-up governance: Dutch beam trawl fishermen's engagement with fisheries management. In, T.S. Gray (ed), *Participation in Fisheries Governance,* pp. 119-140. Springer: Dordrecht.

Van Sittert, L. 2003. The tyranny of the past: why local histories matter in the South African fisheries. *Ocean and Coastal Management* 46(1-2): 199-219.

Van Sittert, L. 2002a. Those who cannot remember the past are condemned to repeat it: comparing fisheries reforms in South Africa. *Marine Policy* 26: 295-305.

Van Sittert, L. 2002b. Leviathan bound: fisheries reform in South Africa, 1994-2001. In: A. Lemon and C.M. Rogerson (Eds.), *Geography and Economy in South Africa and its Neighbours,* pp. 45-62. Ashgate: Hampshire.

Van Sittert, L. 2001. 'To live this poor life': remembering the Hottentots Huisie squatter fishery, Cape Town, c.1934-c.1965. *Social History* 26 (1): 1-21.

Van Sittert, L. 1994. 'Red gold and black markets': the political economy of the illegal crayfish trade c.1890 – c.1990. Department of History, University of Cape Town, South Africa.

Van Sittert, L. 1993. 'More in the breach than the observance': crayfish conservation and capitalism. *Environmental History Review* 17(4): 20-46.

Van Sittert, L. 1985. Slawe van die fabriek: the state, monopoly capital and the subjugation of labour in the Hout Bay Valley crayfish industry 1946-1956. In, C. Saunders *et al.* (eds), *Studies in the History of Cape Town*, vol 6, pp. 112-149. University of Cape Town Centre for African Studies: Cape Town.

Van Sittert, L. and M. Hauck (eds). 2006. Post-apartheid marine fisheries in South Africa: through the ten-year looking glass. *Marine Policy* 30(1): 1-3.

Van Sittert, L., G.M. Branch, M. Hauck and M. Sowman. 2006. Benchmarking the first decade of post-apartheid fisheries reform in South Africa. *Marine Policy* 30: 96-110.

Van Zyl, D. 2001. MCM internal Memorandum regarding experimental fishing-knol at Hout Bay sanctuary. 7 August 2001.

Viswanathan, K.K., J. Raakjaer-Nielsen, P. Degnbol, M. Ahmed, M. Hara and N.M.R Abdullah. 2003. *Fisheries Co-Management Policy Brief: Findings from a Worldwide Study*. WorldFish Center: Penang.

Walsh, D. 2004. Doing ethnography. In, C. Seale (ed), *Researching Society and Culture*, pp. 225-238. Sage: London.

WCRL (West Coast Rock Lobster) Association. 2008a. West Coast Rock Lobster TACs 1998-2008.

WCRL Association. 2008b. WCRL rightsholders 2006 and 2008.

WCRL Association Founding Affidavit. 2008. In the High Court of South Africa in the matter between the WCRL Association and others vs. the Minister of DEAT and others.

White, R. 2007. Green criminology and the pursuit of social and ecological justice. In, Beirne, P. and N. South (eds), *Issues in Green Criminology: Confronting Harms Against Environments, Humanity and Other Animals*, pp. 32-54. Willan Publishing: Devon.

White, R. 2003. Environmental issues and the criminological imagination. *Theoretical Criminology* 7(4): 483-506.

White, R. 1999. Criminality, risk and environmental harm. *Griffith Law Review* 8(2): 235-257.

Willock, A., M. Bürgener and A. Sancho. 2004. First choice or fallback? An examination of issues relating to the application of Appendix III of CITES to marine species. TRAFFIC International: Cambridge, U.K.

Wilson, D.C., J. Raakjaer Nielsen and P. Degnbol, (eds). 2003. *The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects*. Kluwer Academic Publishers: Dordrecht.

Witbooi, E. 2006. Law and fisheries reform: legislative and policy developments in South African fisheries over the decade 1994-2004. *Marine Policy* 30: 30-42.

Woolard, I. 2002. An overview of poverty and inequality in South Africa. Working paper prepared for DFID (SA), July 2002.

Wynberg, R. 2001. A review of key issues facing the management of marine and coastal systems and resources in South Africa. Paper prepared for Department of Environmental Affairs and Tourism, Pretoria, South Africa.

Yin, R.K. 1994. *Case Study Research: Design and Methods.* Sage: Thousand Oaks.

Zaelke, D., M. Stilwell. and O. Young. 2005a. What reason demands: making law work for sustainable development. In, Zaelke, D., D. Kaniaru, E. Kruzikova (eds), *Making Law Work: Environmental Compliance and Sustainable Development*, pp. 29-51. Cameron May: London.

Zaelke, D., D. Kaniaru, E. Kruzikova (eds). 2005b. *Making Law Work: environmental compliance and sustainable development.* Cameron May: London.

Ziegler, J. 2004. The Right to Food. Interim report of the Special Rapporteur of the Commission on Human Rights on the Right to Food, in accordance with General Assembly resolution 58/186.

APPENDIX ONE

FORMAL MEETINGS

ABALONE

No	DATE	MEETING	COMMENTS
1	07-Nov-06	Abalone fisher meeting with MCM	Meeting to discuss TAC allocations with reps of TURFs
2	10-Nov-06	Abalone fisher meeting with MCM	Meeting to discuss TAC allocations with reps of TURFs
3	21-Nov-06	Abalone fisher meeting with MCM	Meeting to discuss area allocations with reps of TURFs
4	12-Mar-07	Abalone Scientific Working Group (SWG)	Met with abalone scientific working group, exl industry to discuss way forward for year
5	12-May-07	Abalone SWG	Meeting with Scientific WG with fishers - highlighting key issues for fishery
6	14-Jun-07	Abalone SWG	Discussed change to working group document for TAC - fishers very unhappy.
7	26-Jun-07	MCM Scientists	Discuss abalone fishery and explore research opportunities
8	28-Jun-07	Abalone SWG	Identify priorities for research and other key issues
9	2 Aug 07	Abalone SWG	Discuss poaching analysis in Zones A-D
10	13-Aug-07	Abalone SWG	TAC proposed recommendations for each zone discussed
11	19-Sept-07	MCM Compliance	Meeting to discuss compliance issues with MCM and abalone fishers
12	23-Oct-07	Abalone compliance workshop	Workshop with MCM and abalone fishers to identify challenges and way forward in terms of compliance issues
13	7-Nov-07	Abalone Management Working Group (MWG)	Meeting to discuss harvesting arrangements for final fishing season
14	12-Nov-07	Abalone MWG	Meeting b/w resource managers and abalone fishers to discuss abalone ban and allocation of 75t - fishers walked out after about 45min.
15	23-Nov-07	Abalone MWG	Meeting to allocate 75t - proportionate cut amongst all zones and cross-allocation in zones
16	27-Nov-07	Abalone MWG	Decision to allocate 75t
17	7-Dec-07	Abalone SWG	Discussion of research priorities for abalone fishery – excluding industry
18	16-May-08	Abalone SWG	First meeting to determine research priorities now that fishery is closed

WEST COAST ROCK LOBSTER

1	22-Jan-07	WCRL compliance	Workshop with key stakeholder groups to discuss and strategise compliance
2	21-Feb-07	Compliance	Meeting with MCM and WCRL rightsholders to discuss compliance & co-management strategy
3	9-May-07	WCRL compliance	Meeting between WCRL rightsholders and MCM

GENERAL

1	June 07	Fisher workshop	Meeting with fishers around Cape Town to discuss way forward for small-scale policy
2	3-Oct-07	Small-scale policy workshop	Meeting with key stakeholders to discuss new small-scale fisheries policy
3	1 & 2 Nov-07	Small-scale policy summit	Two day workshop with key stakeholder groups around entire coast to discuss small-scale fisheries policy
	11 & 12 March 07	Small-scale fishery workshop	Workshop with fishers around coast and other stakeholders re: policy development

APPENDIX TWO

PEOPLE INTERVIEWED

ABALONE

CODE	# INTERVIEWS	DESCRIPTION	COMMENTS
A1	3	Fisher	Key Informant
A2	2	Fisher	
A3	2	Fisher	
A4	1	Fisher	
A5	1	Fisher	
A6	1	Fisher	
A7	1	Fisher	
A8	1	Fisher	
A9	2	Fisher	
A10	1	Fisher	
A11	2	Fisher	
A12	1	Fisher	
A13	3	Fisher	
A14	1	Fisher	
A15	1	Fisher	
A16	1	Fisher	
A17	1	Fisher	
A18	1	Fisher	
A19	3	Fisher	Key Informant
A20	1	Fisher	
A21	1	Fisher	
A22	1	Fisher	
A23	4	Fisher	Key Informant
A24	1	Fisher	
A25	1	Fisher	
A26	1	Fisher	
A27	1	Fisher	
A28	3	Fisher	
A29	3	Fisher	Key Informant
A30	3	Fisher	Key Informant
A31	2	Fisher	
A32	1	Fisher	
A33	1	Fisher	
A34	1	Fisher	
A35	4	Fisher	Key Informant
A36	1	Fisher	
A37	3	Fisher	Key Informant
A38	1	Fisher	
A39		Fishers	Focus Group
A40	1	Fisher	
A41		Fishers	Focus Group
A42		Fishers	Focus Group
A43		Fishers	Focus Group
A44		Fishers	Focus Group

A45	3	Law Enforcement	
A46	2	Law Enforcement	
A47	2	Law Enforcement	
A48	1	Law Enforcement	
A49	2	Law Enforcement	
A50	3	Law Enforcement	
A51	1	Law Enforcement	Focus Group
A52	2	Law Enforcement	General
A53	1	Community member	
A54	3	Community member	
A55	1	Community member	
A56	1	Community member	
A57	1	Community member	
A58	3	Fisheries Authority	
A59	3	Fisheries Authority	
A60	2	Fisheries Authority	
A61	2	Fisheries Authority	
TOTAL	**97**		

WEST COAST ROCK LOBSTER

L1	7	Fisher	Key Informant
L2	2	Fisher	
L3	4	Fisher	Key Informant
L4	7	Fisher	Key Informant
L5	1	Fisher	
L6	1	Fisher	
L7	1	Fisher	
L8	3	Fisher	
L9	1	Fisher	
L10	1	Fisher	
L11	1	Fisher	
L12	1	Fisher	
L13	2	Fisher	
L14	2	Fisher	
L15	1	Fisher	
L16	1	Fisher	
L17	1	Fisher	
L18	2	Fisher	
L19	1	Fisher	
L20	2	Fisher	
L21	2	Fisher	
L22	1	Fisher	
L23		Fishers	Focus Group
L24		Fishers	Focus Group
L25		Fishers	Focus Group
L26		Fishers	Focus Group
L27		Fishers	Focus Group
L28		Fishers	Focus Group
L29		Fishers	Focus Group
L30	1	Fisher	
L31	2	Fisher	

L55	4	Fisher Representative	Key Informant
L56	5	Fisher	Key Informant
L32	1	Law Enforcement	
L33	3	Law Enforcement	General
L34	1	Law Enforcement	
L35	1	Law Enforcement	
L36	1	Law Enforcement	
L37	1	Law Enforcement	Focus Group
L38	1	Law Enforcement	Focus Group
L39	1	Law Enforcement	
L40	1	Law Enforcement	
L41	1	WCRL Industry	
L42	1	WCRL Industry	
L43	1	WCRL Industry	
L44	1	WCRL Industry	
L45	1	WCRL Industry	
L46	1	Community member	Key Informant
L47	2	Community member	
L48	2	Community member	
L49	2	Community member	
L50	3	Community member	
L51	1	Community member	
L52	2	Fisheries Authority	
L53	1	Fisheries Authority	General
L54	1	Fisheries Authority	
TOTAL	88		